

SKIN AFFECTIONS
IN CHILDHOOD

H. G. ADAMSON

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THE SKIN AFFECTIONS
OF CHILDHOOD

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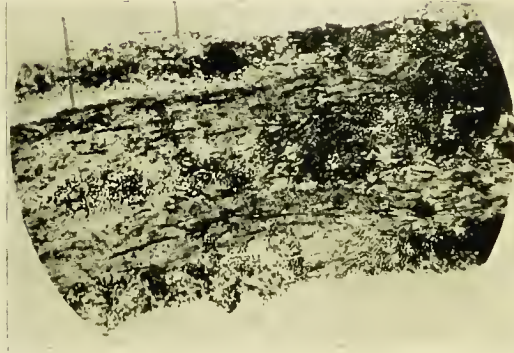
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PLATE I

HAIR DENUDED
OF CUTICLE

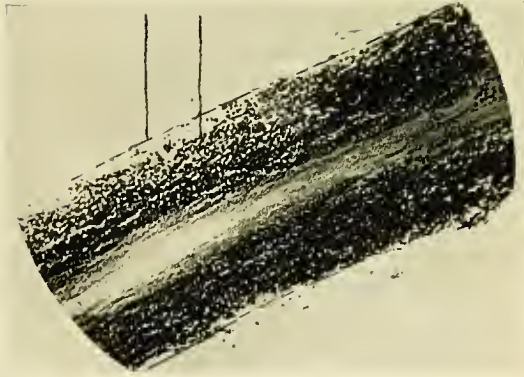
SHEATH OF
SMALL SPORES



SMALL-SPORED RINGWORM
STAINED SPECIMEN OF HAIR INVADDED
BY MICROSPORON AUDOUINII

contispiece

INTACT CUTICLE
OF HAIR
LARGE SPORES
IN SHAFT OF
HAIR



LARGE-SPORED RINGWORM
STAINED SPECIMEN OF HAIR INVADDED BY
TRICHOPHYTON MEGALOSPORON ENDOTHRIX

OXFORD MEDICAL PUBLICATIONS

THE
SKIN AFFECTIONS
OF CHILDHOOD

WITH SPECIAL REFERENCE TO THOSE
OF MORE COMMON OCCURRENCE AND
THEIR DIAGNOSIS AND TREATMENT

BY

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PREFACE

THIS little manual is intended solely as a practical guide to the clinical study and treatment of skin affections in children. It has no pretension to be an exhaustive treatise upon these diseases. Even in this restricted field I am aware that it has many shortcomings ; but I hope that in spite of these it may be found useful to students of medicine, and to practitioners in their daily work.

The book is based very largely upon my own personal experience ; but I have also gratefully to acknowledge my indebtedness to the influence of the teaching of Dr. J. J. Pringle, who first directed my attention to the study of Dermatology, and of Dr. T. Colcott Fox, with whom I have long had the honour and good fortune to be associated in his hospital work.

9 WEYMOUTH STREET,

Mar. 7, 1907.

INTRODUCTION

AFFECTIONS of the skin in children are essentially the same as those in adults, and their scientific study forms an intimate part of the whole subject of dermatology; but from the practical side—from a clinical point of view, and as regards diagnosis and treatment—there are many advantages in considering them apart. Many affections of the skin are far more prevalent in childhood than in adult life; others are peculiar to childhood; and there are many affections which, when occurring in children, are so modified in the distribution and grouping of their lesions that they present altogether different appearances. *Ringworm of the scalp*, *lichen urticatus*, and the eruptions of *congenital syphilis* occur only in early life. *Impetigo* in its various forms may almost be regarded as a disease of childhood, outnumbering all other skin affections among children of the poor. *Nævi* and other congenital conditions are usually first brought for treatment at this time of life. *Lupus vulgaris* generally first appears in childhood, and it is of the utmost importance that its lesions should be early recognized and treated at an early stage. The eruptions of *eczema* and of *scabies* are much modified in infancy. The exanthematic eruptions of *measles* and

of *scarlet fever* are most prevalent in the young, as are also the various *toxic erythemas* that may be confused with them.

All of these affections are of common occurrence, and a knowledge of their clinical features and of their diagnosis and treatment is therefore of great practical value; and although they find a place in the larger works upon diseases of the skin, many of the smaller but important clinical details and minor points of treatment are necessarily omitted; and moreover, the information is scattered amongst facts relating to diseases of adults.

In the following pages I have endeavoured to bring together into one compass a practical account of these affections of childhood, particularly of those of more common occurrence. I have dealt with them mainly from the clinical side, and, for this reason, I have arranged them, as far as possible, upon an *etiological basis*. An etiological classification is obviously the ideal one from a scientific point of view, and as our object from the practical side is the prevention and cure of these affections, treatment can be rational only when based upon a knowledge of their cause. Such a classification, owing to the gaps in our knowledge, must necessarily be imperfect. But although there are very many skin affections of the cause or causes of which we know little or nothing, and which for the present must be kept aside as ‘unclassifiable’ in such a scheme, it is possible that eventually these also will be brought into one or other of the etio-

logical groups which our present knowledge permits us to make.

So far as we have any definite conception of the ultimate causes of skin affections they may be included in one or other of three groups: *physical agencies*, *parasitic invasions*, and *toxic actions*.

These may be regarded as the exciting causes of diseases of the skin. They seldom act alone, and there are usually predisposing conditions in the form of *acquired* or *hereditary tendencies* which render the organism susceptible to their action.

Hereditary tendency may be defined as anatomical or physiological variation in type, which renders the organism unable to a greater or less degree to resist the hurtful influence of physical, parasitic, or toxic agents; and in this sense the influence of heredity is obviously very widespread.

Similarly, want of power of resistance may be *acquired* from various causes, such as malnutrition—arising from excessive or insufficient amount of food—or from defective elaboration in the organism, bad hygiene, or even from the action of toxic, parasitic, or mechanical agents themselves.

Predisposing conditions being disregarded, it should be possible to arrange all skin affections of which we at present know the cause under one of the three groups just referred to. But, in practice, it is convenient to recognize at least two other groups, namely, those of '*congenital origin*' and those of '*nervous origin*'. For although it is gradually being acknow-

ledged that all congenital affections have probably as ultimate causes mechanical injuries, parasitic infections, or toxæmias, nevertheless, '*congenital origin*' is an important etiological factor, and in many instances the only known one at present. Similarly, although the nervous system is only involved as an intermediary in the causation of skin diseases, the ultimate agents being mechanical, parasitic, or toxic, yet the nervous influence is often so predominant a feature, and indeed frequently the only ascertainable factor, that it is convenient to recognize a group of skin diseases as being of *nervous origin*. But to establish a separate group for diseases of hereditary origin is not practicable; for, apart from transmission of hereditary tendency it cannot be said that any skin diseases are inherited as such. Eczema is not inherited, but only the peculiar susceptibility to the influence of mechanical and toxic agents. Tuberculosis as a disease is not inherited, but only the vulnerability to the action of the tubercle bacillus. Congenital syphilis is not, strictly speaking, inherited, but is a contagion from parent to embryo or foetus. There is, however, an apparent exception to this rule inasmuch as a few affections such as ichthyosis, keratosis palmaris, hirsuties, &c., may be transmitted from parent to offspring; but these must be regarded as deformities or '*inborn variations*' rather than as diseases, which are '*acquired characters*'. These deformities may be conveniently placed under the heading of congenital affections.

According to the views here expressed I have

classified the affections under consideration in this work broadly into the following groups:—

- I. Congenital affections.
- II. Affections due mainly to direct physical causes.
- III. Affections due to local parasitic action:
(*a*) animal, (*b*) mould fungi, (*c*) microbic.
- IV. Affections due to toxæmias and to general microbic infections.
- V. Affections of nervous origin.
- VI. Affections of unknown origin.

But although I have here chosen the etiological method, I do not lose sight of the necessity and value of other methods of classification, more especially of that of Willan and his followers, founded upon the type of elementary lesion (papule, scale, bulla, pustule, &c.), and of that of Hebra based upon the pathological anatomy of the lesion. These methods of classification have not only been, but still are, of great value. It was by their help that our present knowledge of diseases of the skin was built up: the history of dermatology comprises three main periods, (1) the description of the elementary lesions and of their different modes of evolution, distribution, and grouping; (2) the histological examination and study of cutaneous pathological phenomena; (3) the study, more especially of the causation of skin diseases, by the aid of modern bacteriology, hæmatology, chemical pathology, &c. A student of diseases of the skin has

to pass through similar stages—first of all he must become thoroughly familiar with the elementary lesions—with the ‘alphabet of dermatology’; then he has to study the microscopical anatomy of the lesions and the pathological phenomena, and finally—and only then is he in a position to do so—their etiology and treatment.

I have taken for granted familiarity with the recognized elementary lesions, and I have therefore omitted any preliminary description of them. For the same reason I have also omitted any systematic description of pathological processes as they affect the skin, and I have referred to the pathology of the affections and to the minute anatomy of their lesions only when they present special interest or are necessary to an explanation of their etiology or afford an indication for treatment. Finally, I have dealt with the affections of the skin, as they occur in childhood, mainly from the practical side—clinical, diagnostic, and therapeutical.

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CHAPTER I

AFFECTIONS OF CONGENITAL ORIGIN

STRICTLY speaking, a congenital affection of the skin is one that is present in a child when it is born; but the term is also applied, in a wider sense, to affections which, although probably originating in the embryo or in the foetus, are latent at birth, and show themselves only subsequently in life. Of the causes of these maladies we know very little, and the term 'congenital origin' merely denotes that they have this feature in common.

Broadly, congenital affections may be divided into two classes: (1) those which result from disease contracted, or injury inflicted, during foetal life; (2) those which are due to some defect in the normal process of development.

To the first class belong *congenital amputations*, or *absence of portions of skin*, and *congenital hypertrophies*,—resulting from injuries, pressure of bands, adhesions of membranes, &c.—and some forms of *congenital elephantiasis*—due to microbic infection and cellulitis during intra-uterine life. *Sclerema* and *œdema* of the new-born and *congenital syphilis* may also be included in this group, as affections con-

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tracted in utero, but generally not showing themselves until after birth.

In the second group may be placed *vascular navi*, *moles*, *lymphangiomata*, *congenital alopecia*, *congenital leucodermia*, *congenital ichthyosis* (Harlequin foetus): in the wider sense belong also those diseases which though of congenital origin yet are not manifest until later in life, namely, *ichthyosis*, *multiple fibromata*, *adenoma sebaceum*, *epidermolysis bullosa*, *congenital xanthoma*, *xerodermia pigmentosa*. The causes of such defects in development are not yet explained, but there is a growing tendency to believe that many may be due to toxic poisoning in the parents—alcohol, syphilis, tuberculosis. Some few of these affections—such as xanthoma, epidermolysis bullosa, palmar and plantar hyperkeratosis—may be transmitted from one generation to another, and are therefore hereditary in the true sense of the word.

In the following pages I shall discuss at length only the more common congenital affections of the skin. The rare diseases I shall describe more briefly.

NÆVI

In this country the term *nævus* is generally applied only to congenital *hæmangiomata* or blood-vascular *nævi*. On the continent it has a wider significance, and includes all localized congenital hypertrophies of any of the elements of the skin, whether blood-vascular in structure or composed of lymphatic vessels, sweat-

glands, sebaceous glands, adipose tissue, or of epithelial cells, as in 'soft moles'. This wider meaning of the term is now becoming more universal, and it is in this way that I here employ it.

VASCULAR NÆVI, OR CONGENITAL ANGIOMATA

Vascular nævi are by far the most common of the congenital defects of the skin met with in children. They may be described as localized overgrowths of vascular tissue. A vascular nævus may be situated in the skin itself, or it may be more deeply situated in the subcutaneous tissues, or it may involve both skin and deeper tissues. Hence the terms *subcutaneous*, *cutaneous*, and *mixed nævus*.

Of cutaneous nævus there are two types, the Port-wine mark and the common cutaneous nævus.

Port-wine mark. This occurs in the form of macules varying in colour from a bright red to violet, of various shapes and sizes, sometimes quite small, often covering large areas, as the whole of one side of the face. On casual inspection these areas look like pigment stains, but they may be distinguished by the fact that they are momentarily obliterated, to some extent at any rate, by pressure.

Cutaneous nævus. The common Cutaneous nævus (strawberry-mark or raspberry-mark) is more obviously vascular. It is usually smaller in area, from the fraction of an inch up to an inch or more in diameter. It is raised, and of a bright red colour.

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Pressure causes the swelling to diminish and the colour to fade temporarily. The swelling may be erectile—that is, it becomes turgescient under emotion or effort.

The *subcutaneous naevus* lies beneath the corium, forming a distinct swelling covered with skin of normal colour. It usually does not entirely disappear on pressure, and it may or may not be erectile. It may be *encapsuled* or *diffuse*.

The *mixed naevus*, or combined subcutaneous and cutaneous naevus, is more common than the purely subcutaneous. The cutaneous part is usually less extensive than the subcutaneous.

CLINICAL COURSE OF VASCULAR NÆVI. Vascular naevi although probably always present at birth are often not noticed until later, when they have increased in size sufficiently to attract attention. They are seen most frequently in quite young babies, and less often as age increases, for the reason that many of them disappear spontaneously in early life. Occasionally they may be associated with other malformations, such as hare-lip, or spina-bifida, or with other forms of naevi, as pigmented moles, or lymphangiomata. They may occur upon any part of the body. The most usual situations are said to be the face, and the head, neck, and arms; possibly this is because naevi in these exposed parts are more often brought for treatment; though there is another explanation, namely, that they are due to injury at birth and consequently these parts are actually more often

affected. But although vascular nævi may sometimes, perhaps most often, disappear spontaneously, this is not always the case, and they may remain stationary, or they may increase slowly or rapidly in size. Generally, however, the worst that can be said of a nævus is that it is disfiguring; but sometimes they may become serious on account of their situation in positions where they are liable to become injured and ulcerated or to lead to hæmorrhage.

Ulceration of vascular nævus. Nævi, especially upon the vulva, in the groin, or on the mucous membranes of the lips or cheeks, may cause trouble from ulceration. Fortunately, however, the common termination of ulceration, when properly treated, is in the cure or partial cure of the nævus by scarring, and serious hæmorrhage or septic infections are of rare occurrence. When a vascular nævus ulcerates it generally does so at the centre or at one side; the ulcer spreads and becomes crusted, or covered with purulent discharge if in a moist situation. But the margin, or some portion of the nævus still unaffected by the ulceration, generally remains as an index to the true nature of the lesion. Under treatment by boric acid fomentations the crusts separate and the discharges dry up and the ulceration rapidly cicatrises, leading to partial, or in some cases complete, cure of the nævus by scarring.

ANATOMICAL STRUCTURE OF VASCULAR NÆVI. Nævi are described as *capillary* or *cavernous*. The former are composed of a dense capillary overgrowth,

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the capillaries being of dilated though not communicating. In cavernous nævi there are lateral communications between the dilated capillaries, giving rise to large cavernous spaces.

The subcutaneous nævus may be encapsuled in a fibrous sheath, or it may pass diffusely into the surrounding tissues without any limiting ensheathment. A vascular nævus may be combined with a growth of adipose tissue—*nævus lipoma*, or more rarely with the structure of a pigmented mole.

ETIOLOGY OF VASCULAR NÆVI. Virchow suggested a possible anatomical cause, namely, some connexion with the embryonic fissures of the skin. Unna maintains that they are the result of injuries at the time of birth—pressure anæmia is followed by a prolonged paralytic hyperæmia, a hyperæmia which may become permanent if the tonic ganglia are permanently injured. But both these views are theoretical and unsupported by evidence, and, in truth, we are at present quite ignorant of the true cause of vascular nævi.

DIAGNOSIS. There should be no difficulty in the diagnosis of nævi; though, without careful observation, the true nature of the affection may be overlooked in the case of ulcerated nævus.

TREATMENT OF VASCULAR NÆVI. Very many children are born with nævi which disappear during the first few months of life; and a large number of nævi persisting in early childhood disappear before adult life. One should make it a rule, therefore, not to

remove a nævus unless it is actually increasing in size. More especially in young babies one should delay interference as long as possible, not only because of the strong probability of spontaneous disappearance, but because pain or loss of blood, which the treatment may necessitate, are ill-borne by infants. It is always better to wait until the end of the first year, and better still, if possible, until the child is four or five years old. Meanwhile, for cutaneous nævi which are stationary or regressing, a daily application of collodion is a good form of treatment, for it is certain that nævi sometimes disappear under this treatment, and, although it may be spontaneous rather than the result of the application, the method satisfies the often anxious mother that something is being done. If, on the other hand, a cutaneous or a subcutaneous nævus is quickly increasing in size operative measures should not be delayed.

The methods of operation to be recommended are (1) *excision* or (2) *destruction by electrolysis*.

Excision. For nævi of moderate size *and situated upon covered parts* excision is, from many points of view, the most satisfactory method. The operation is completed in one sitting, and only a linear scar is left. Excision is rendered easy and safe from the fact that most nævi are encapsuled, but even when the capsule is absent there is no risk of hæmorrhage provided the tissues be cut well beyond the margin of the growth. When a deep nævus involves the skin only to a slight extent the cutaneous part should be

removed with the deeper encapsuled part, but if the skin is extensively involved it may be necessary to reflect it and to leave part of the nævoid skin. As the cutaneous part is continuous with the deep, it is then necessary to cut into the vascular nævus, and severe hæmorrhage will occur unless precautions be taken to prevent it. This may be done either by compressing with a clamp or by inserting four or five steel pins below the growth and winding beneath them a piece of rubber tubing.

The portion of cutaneous nævus left after excision will often subsequently disappear spontaneously, or it may be afterwards treated by electrolysis.

Electrolysis. For nævi situated upon exposed parts, and for nævi in any situation which are too large for excision, treatment by electrolysis is the most satisfactory method. Its disadvantage is that it may require many sittings, but it has the supreme advantage that when properly conducted it leaves no scar whatever. There are two methods of performing electrolysis for nævi, the unipolar and the bipolar. By the first method the positive pole is applied to some part of the body, preferably near the nævus, by means of a moistened, covered metal pad, while the needle is attached to the negative pole. The more usual and, I think, the preferable method is the *bipolar* in which both needles are introduced. The *operation* is simple, although it requires some experience to know exactly when sufficient has been done. A galvanic battery of from 18-24 cells,

connecting wires, needles, and needle-holders, are the instruments required. The needles should be insulated with vulcanite to within an eighth to three-quarters of an inch from the point, according to the size of the nævus to be destroyed. Steel is probably the best material, as the points of steel needles are sharper than those of platino-iridium needles. Ordinary sewing needles may be used, and the positive needle, which becomes blackened and blunted, may then be thrown away after use. The positive needle is introduced fairly deeply into the growth, where it can do no harm to the skin. The negative needle is put in at some little distance from and parallel to the positive. The current is then passed until a doughy swelling appears round the needles. Usually a current of 8–12 milliamps. is sufficient, though many operators employ 15–20 milliamps. Stronger currents than this should not be used, or there is danger of subsequent sloughing of skin and consequent scarring. The negative needle is then withdrawn while the current is still passing—which cauterizes the hole slightly and prevents bleeding—and introduced at another part; and so on until the whole growth has become firm. In a large nævus it may be necessary also to move the position of the positive needle from time to time. Usually the current can be passed for from two to five minutes, but the amount of induction that may be safely produced can only be estimated by experience. The essential point is to avoid destruction of the skin, and if any change of colour

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takes place in this, the current must be stopped and the needle inserted more deeply, or at any rate in another part. It is better, I think, not to use more than one needle at each pole unless when dealing with a very large nævus, in which case time is saved by having several needles attached to the negative pole. It is better, however, always to do too little at a sitting than too much. After the operation at least six weeks should be allowed to judge the effect of the electrolysis before performing a second. The number of sittings required will depend largely upon the size of the nævus and upon the skill of the operator. In some cases even one operation, although it has not destroyed the whole of the nævus, will eventually lead to its disappearance.

I need hardly insist upon the point that the operation of electrolysis should be done antiseptically. The skin should be thoroughly disinfected before the operation, and a small pad of collodion painted over each puncture afterwards, or a pad of gauze bound over the whole area. Otherwise there is some risk of suppuration of the slough which has been produced deeply in the tissues by the treatment. An anæsthetic is required in most cases. In infants, where the nævus is small, it is, however, sometimes advantageous to perform the operation without an anæsthetic, as in babies there is often less discomfort from the pain than from the anæsthetic.

For the *Port-wine stain* type of nævus I do not think that any one has yet found a satisfactory method



SOFT MOLE
(WITHOUT HAIR-GROWTH)



LINEAR NEVUS

of treatment. The small *stellate* or *spider nævi* seen often on the faces of older children, but which are probably not of congenital origin, and therefore not really nævi at all, are readily cured by puncturing the centre with the fine needle of a galvano-cautery or with the electrolysis needle.

By far the most satisfactory method of treating *ulcerating nævi* is by boric acid fomentations. The crusts and discharges are soon removed and replaced by a healthy granulating ulcer, which rapidly cicatrises, the cicatrix leading to partial and sometimes to complete cure of the nævus.

SOFT MOLES, OR PIGMENTED NÆVI

Pigmented moles appear as a rule soon after birth and grow during early childhood. They are commonly situated upon the face, neck, or back, but they may occur anywhere. They may be single, or few, or numerous and scattered practically all over the body. They vary in size from a few lines to several inches across. They are commonly seen as lenticular deeply pigmented elevations, with, usually, springing from the growth, several coarse hairs. Less commonly they may involve extensive areas, as the whole of one side of the face, or—a favourite site—the lower part of the lumbar region, or even the whole of the lower part of the trunk, the buttocks, and the upper parts of the thighs—the so-called ‘bathing-drawers area’.

Pigmented moles are sometimes seen in association with other developmental defects such as vascular

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nævus, hare-lip, adenoma sebaceum, multiple fibromata, &c.

Non-pigmented moles, pigment patches, and patches of hair. Growths of similar nature and structure to the pigmented hairy mole may occur without hair and without pigment as soft raised pale-yellowish growths (Pl. II). Or there may be pigment patches without growth of hair; or hair-growth with little or no pigment or cell-growth.

The **PATHOLOGY** of soft moles has been the subject of much discussion. Histologically they are made up of rows of cuboidal cells, situated in the corium, beneath the epidermis. The origin of these cells has been disputed, but they are now almost generally recognized as being of epithelial nature and derived originally from the epidermis by snaring off of portions of its epithelium. It is well known that late in life these growths may become malignant, especially if subjected to mechanical irritation, and the fact that the malignant growths thus derived are now known to be of carcinomatous nature, and not sarcomatous as was formerly supposed, is in favour of the view that moles are epithelial structures. In addition to the characteristic cuboidal cells there is present a large amount of pigment, and also an excessive number of hairs; occasionally too there is an associated vascular overgrowth; or, as either of these overgrowths may occur singly, there may be pigment alone, the hairy growth alone or the cell-growth alone.

TREATMENT. The object in the treatment of moles

in childhood is the removal of disfigurement, and it is usually moles upon the face that call for interference. If small they are readily destroyed by *electrolysis*. In the case of a small hairy mole the removal of each hair by electrolysis is often sufficient to get rid of the deformity. The operation is done at an age when the child will readily bear the small amount of pain. It is performed in the same way as for removal of hairs in hirsuties. With a battery of from 6-8 cells, using a current of from 2-3 milliamperes only, the needle, attached to the negative pole, is introduced into the hair follicle and passed down to the root of the hair; the patient then puts one or two fingers into a glass of water, in which is the positive pole, thus closing the circuit. The current is allowed to pass for about thirty seconds. The hair papilla is destroyed and the hair is readily extracted. If, at a subsequent visit, any pigment or growth remains, this may be destroyed by electrolysis, passing the negative needle into the growth at various points, and allowing a current of 3-4 milliamperes to pass through for a few seconds. Small non-hairy moles may be treated in a similar way, and by taking care always not to destroy too much tissue at one sitting, they may be removed with hardly any subsequent scar.

Flat pigmented patches may be removed by painting the pigmented area with ethylate of sodium, carefully applied by means of a match stick. After a time the black scab peels off, leaving the area free from pigment and without any noticeable scarring.

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Medium sized moles are more satisfactorily removed by excision.

In the case of very large moles too extensive for mere excision surgeons have devised methods of excision followed by plastic operations or by grafting. The method of Horsley of raising the mole in a flap, slicing off the hair papillæ and hair bulbs with a razor, and replacing the flap, is an ingenious way of permanently getting rid of the hairy growth over a large area; the pigment and part of the cell growth of course remains.

I have attempted to treat several cases of hairy mole by means of the X rays, but without success. The hair falls after sufficient exposure, but returns again later. No resolution of the growth takes place. It would of course be possible to destroy both the growth and the hair, by producing a local dermatitis and destruction of tissue, but this I think is unjustifiable.

LINEAR NÆVI, OR HARD MOLES

These, though less frequently seen than vascular nævi or soft moles, are really not of very rare occurrence. They are so-called because they occur in lines or streaks. They are usually made up of a collection of closely set minute mole-like elevations, which may become thickly crusted with heaped up horny scales, giving them then a dry hard appearance. They are set along a line which may occur almost in any situation, and extend merely for a few inches, or half round

the trunk, or the whole length of a limb. Usually they are upon one side of the body only, and from their manner of distribution it has been supposed that they might be situated in areas of nerve supply. Other suggestions are that they occupy Voigt's lines. But none of these theories are satisfactory. Generally the nævus is quite irregular in distribution, and evidently not corresponding to any known lines or areas (Pl. II).

Linear nævi, besides being disfiguring, may often become inflamed by infection or from injury.

Often these nævi do not make their appearance until the child is some years old; sometimes they have been observed soon after birth.

Ichthyosis hystrix. There is a condition called *ichthyosis hystrix* in which there are wide bands or large unilateral areas of horny crusted growth. This may be regarded as only a more severe type of linear nævus. Such cases are still more rare than the linear nævus form.

PATHOLOGY. The structure of these nævi differs from that of soft moles. There are no cuboidal cells in the corium, no pigment, no hairy growth, but merely a thickening of the prickle-cell layer and of the horny layer of the epidermis. Sometimes there is a certain amount of inflammatory cell exudation in the corium—probably secondary. A few cases of nævi with linear distribution have been described in which the nævus has been made up of sebaceous glands or of sweat glands.

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DIAGNOSIS. The less markedly linear examples, those, for example, where there is perhaps a warty growth of from one to a few inches long and half an inch in breadth, may easily be mistaken for cases of verrucose lupus.

TREATMENT. The scaly or warty formation can be kept under control by repeated application of salicylic acid collodion, or even by a strong salicylic acid or resorcin ointment. For permanent removal of the growth application of potassa fusa, or of the actual cautery under an anæsthetic, are satisfactory for limited areas or long narrow strips. The smaller nævi may be excised. For more extensive areas (ichthyosis hystrix), little can be done beyond keeping down the growth by the constant use of strong alkaline soaps and salicylic acid ointment.

LYMPHANGIOMA

Lymphangioma circumscriptum may be described as a nævus analogous to the blood vascular nævus, but made up of an overgrowth and dilatation of lymphatic vessels and spaces, instead of blood vessels; it may sometimes be associated with a blood vascular nævus. The condition is very rare; it begins usually in early childhood; it consists of a group of small, thick walled, closely packed, deeply seated vesicles, and its appearance and history of long duration make the diagnosis easy. There is no tendency for it to disappear spontaneously. It may be *treated* by cauterization or by electrolysis, or by excision.

ADENOMA SEBACEUM

Adenoma sebaceum is an affection which is not very uncommon among persons of low mental calibre, the larger number of cases being seen among epileptics and imbeciles. It is rare in persons of normal intellect. It is characterized by the appearance of small waxy, yellowish nodules, especially about the middle parts of the face. The nodules consist of sebaceous gland structure, and sebum is extruded upon puncture and pressure. They are generally associated with more or less telangiectasis over some tumours, making them pinkish or red. Generally a few lesions are present at birth, and they continue to increase in numbers until puberty, although the individual lesions do not alter much in size. The affection is regarded as of congenital origin, and of the nature of a nævus. With the more typical lesions are usually associated other skin deformities, such as hairy or pigmented moles, vascular nævi, patches of pigmentation, and, especially, flat fibromatous patches on the back, usually just above either iliac crest.

The only *treatment* is the removal or destruction of the nodules.

**EPIDERMOLYSIS BULLOSA HEREDITARIA OR
CONGENITAL TRAUMATIC PEMPHIGUS**

This affection is of rare occurrence. It is characterized by an extraordinary vulnerability of the skin, so that blisters are produced by slight injuries. The

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condition is present at or soon after birth, and lasts through life. It is strongly hereditary, and it may affect more than one member of the same generation. The bullæ may occur anywhere, but they are mostly produced upon parts particularly exposed to slight injuries, as the hands and the feet, the elbows and the knees. They may occur also in the mouth. The bullæ are sometimes hæmorrhagic, and they may become infected by pus organisms and may then leave scars. Often the nails become deformed or are destroyed. 'Epidermic cysts' may occur at the seat of former lesions, as after other bullous eruptions. The general health is unaffected. The pathology of the affection is not understood. Anatomically it is described as a condition of keratolysis.

Treatment. Patients affected with this disease are only free from lesions when properly protected.

XERODERMIA PIGMENTOSA

This is a very rare affection which usually develops in early life, beginning during the first or second year as a freckle like pigmentation, preceded sometimes by an erythematous condition. The pigment spots are at first seen exclusively upon exposed parts and in summer or after sun-exposure. Soon their distribution becomes more extensive, though remaining limited to certain parts—face, neck, upper chest, hands, and forearms, and less markedly upon the legs below the knees. Eventually, perhaps after one or two summers, these lesions, instead of fading in the winter, become

permanent and more deeply pigmented ; telangiectases and small angiomatous growths, and white, smooth, shiny, atrophic spots also appear. The pigment areas and the white atrophic spots here and there blend to form large areas, and by the contraction of the atrophic areas around the eyes ectropion may be produced. After variable periods of months, or, generally, of years, small superficial crusted ulcerations appear and small wart-like growths among the pigment spots, and, eventually, occasionally quite early, generally only after ten to twenty years or more, the sores and warts give rise to malignant papillomatous or fungating growths of an epitheliomatous nature, to which the patient not long afterwards succumbs.

The cause of this disease is unknown ; the only known factors in its etiology are the strong tendency which it shows to affect several members of one family (without however being an hereditary disease), and the action, possibly, of sunlight as an exciting cause. There is a very close resemblance between this affection and X-ray dermatitis, with its subsequent pigmentation, warty growths and malignant growths.

MULTIPLE FIBROMATA, NEURO-FIBROMATA OR RECKLINGHAUSEN'S DISEASE

In this affection, which is of rare occurrence, there are numerous soft roundish fibrous tumours of various sizes embedded in the skin or pedunculated

and scattered over the body. The tumours develop in infancy or childhood and grow larger later in life. The tumours are often associated with pigmentation of the skin, and with *nævi* of various kinds, and they generally, though not necessarily, occur in persons of feeble intellect. They are composed of fibrous tissue and may contain also primitive nerve fibrils.

XANTHOMA

Xanthoma is a rare affection characterized, as the name denotes, by growths of a yellow colour. It may occur either early in life, or at a later age in association with jaundice or with glycosuria. The form of xanthoma which occurs in childhood (of which some forty examples have been recorded) may be congenital, or it may appear in the first few months or years of life. In many instances it has occurred in several members of the same family, and in several it has been hereditary and affecting members of more than one generation.

SYMPTOMS. There are seen, disseminated over the body, yellow nodules or tumours of various sizes from that of a pin's head to that of a split pea or a small bean—sometimes considerably larger; they are firm and elastic, not in any way painful, and not itching: indeed the indolent character of the lesions is very striking. The general health is unaffected, there is no jaundice and no diabetes.

The lesions are often situated about the hands and feet, knees, elbows, and buttocks, but they may be

diffusely scattered over the body, or occasionally limited to one part. They occur also upon mucous membranes.

The duration of the affection is indefinite.

ETIOLOGY AND PATHOLOGY. The real nature of this malady is unknown: in adults it is generally associated with jaundice or with diseases of the liver, or, as a similar, if not identical, affection, with glycosuria; but jaundice or diabetes have only very rarely been met with in cases below puberty. Histologically, the lesions show fatty cells somewhat resembling those of normal sebaceous glands which by some are regarded as the transformed cells of an inflammatory process, by others as altered embryonic cells; in favour of the latter view is the fact that ordinary vascular nævi are occasionally associated with the xanthoma nodules.

DIAGNOSIS. Multiple xanthoma in a child may be confounded with the nodular form of urticaria pigmentosa; it should be distinguished by the absence of pruritus and of intermittent urticarial swelling of the lesions.

TREATMENT. If the lesions are few and suitably situated they may be excised or cauterized; but there is no other satisfactory treatment.

ICHTHYOSIS

Ichthyosis is an affection of congenital origin, characterized by a dryness and harshness of the skin, more or less generalized, and accompanied by varying

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degrees of scaliness. Extreme forms, in which the scales are thick and plate-like, those to which the term ichthyosis (fish-skin) is more appropriately applied, are rare; but the milder forms, for which the term xerodermia (dry-skin) is employed, are of common occurrence. That these two forms represent degrees of the same affection is clear, from the fact that all grades of severity, between mere roughness and dryness of the skin up to those with thick horny scales, are met with, and that the two conditions are often seen in the same patient.

Xerodermia, or 'dry-skin', the milder form of this disease, is of fairly common occurrence. The skin is dry, rough, and dirty-looking. There is generally a history that the child was born with a naturally smooth skin, but that, at varying periods during infancy, from a few weeks of age to several months, the skin was noticed to become dry and harsh. In the mildest cases of all there may be little more than a dryness of the skin during the colder months, with a noticeable absence of sweating, and a tendency to 'chapping'. In the slightly more severe forms there is scaliness in addition to the dryness. The scales are thin and not heaped up—in fact they appear to be due to a cracking or splitting up of the thin, dry, horny layer into a sort of mosaic, the scales being adherent at their central part and free at the margin. The condition has been likened to a thin layer of collodion beginning to crack. When the scales are at all pronounced they have generally a dirty brown colour.

This scaling is usually most marked on the extensor surfaces of the arms and legs; on the chest and back the scales are often smaller and 'branny'—though they may be equally developed in these regions; the central parts of the face may be dry and rough with cracks radiating from the mouth and nose. The distribution of the dryness is almost general, only the flexures—the elbows, popliteal regions, groins, and axillæ remaining smooth and supple. The elbows and knees may be the seats of thicker scales. The scalp is usually a little scaly, and the hair is dry and brittle. The palms and soles are often said to be unaffected, but although they are not scaly, they have not a normal appearance, the fine lines are obliterated and the larger markings deeper than normal. In all cases the absence of normal perspiration is a marked feature, and it is probably for this reason that most cases are better in hot weather when a certain amount of sweating does occur. Sweating may, however, occur on unaffected parts, i. e. on the flexures and the palms and soles. In addition to the dryness of the skin there is a marked absence of subcutaneous fat, so that the skin feels thinner than normal when pinched up between the fingers.

The point of practical importance about these cases is the extreme vulnerability of the skin; trivial exposures to heat or to cold or to east winds, will often set up an eczematous form of dermatitis. Apart from this, even the tendency to 'chapping', the difficulty of keeping the skin clean, and the sometimes accom-

panying itching are matters of great discomfort to the patient. The disease is often at its worst at about the age of ten or twelve years, and after this time there is some tendency towards improvement, although a certain amount of dryness and scaliness may persist through life unless kept under control by continued attention.

Keratosis (or ichthyosis) pilaris. Sometimes on the extensor aspects of the limbs of children suffering from xerodermia, the pilo-sebaceous follicles are raised so as to give a permanent 'goose-skin' appearance to these parts. The apparent papules are due to heaping up of horny cells at the mouth of the follicle—*keratosis supra-follicularis* or *keratosis pilaris*. The condition may often be seen, too, apart from xeroderma.

Ichthyosis. In the more severe and rarer cases known as ichthyosis, the scales form thick lozenge-shaped plates of a dark greenish colour or even black, so that skins thus affected have been likened to those of reptiles. As in the milder form, the face and palms and soles and the flexures to a great extent are respected, and the scaling is generally less severe in some parts than in others. On raising the horny scales, the skin beneath is found not to be implicated, but smooth and non-papillomatous, thus distinguishing this condition from that of ichthyosis hystrix, which, as I have said above, is really a form of linear nævus.

ETIOLOGY AND PATHOLOGY. Xerodermia and ichthyosis are usually classed among congenital hyperkeratoses. In the most marked cases a thickening of

the horny layers is the prominent histological feature. But in the milder cases at any rate, the excessive formation of horn cells is a less marked feature than is the deficiency in the normal secretions. Clinically we can observe that the subcutaneous padding of fat is less than in normal skins and that the sweat and sebaceous secretions are diminished. These facts are supported by microscopical examination. The subcutaneous fat is scanty, the sebaceous glands are atrophied, and although there is no atrophy of sweat-glands changes are described (Unna) which indicate diminished activity. Moreover, the prickle-cell layer is much diminished in thickness, and not only is the number of cells less than normal, but their protoplasm is meagre. The horny layer is thickened, slightly in moderate cases, very much in marked cases with thick scales, the changes in the epidermis indicating a less succulent condition of the prickle-cells with a more than normal rapidity of change into horny cells. All these facts seem to point rather to a diminished nutrition of the epidermis, dependent upon a diminished supply of fat and fluid rather than to the hyperkeratosis as the primary feature.

Of the etiology of this affection we are ignorant. The condition is regarded as congenital because it begins in early infancy and lasts through life. Several members of one family may be affected, but it is not so markedly a family or hereditary disease as, for example, congenital keratosis palmaris. It has been suggested that this condition may be the result of some

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form of toxæmia; and the marked improvement of cases when taking thyroid gland substance in a way lends support to this view.

TREATMENT. The indications for treatment are to improve the general health, to encourage the local secretions, to remove scales by local treatment, and to supply, as far as possible, the natural want of fat by greasy applications. Fatty foods and cod liver oil are indicated. To increase the perspiration small doses of pilocarpin may be administered; and thyroid gland seems in many cases to improve the condition of the skin: but the effect of the thyroid or of pilocarpin ceases as soon as these drugs are discontinued, and it is obvious that the use of internal remedies of this sort cannot be continued indefinitely. By frequent baths, however, and subsequent application of an unguent, such as simple vaseline, the skin may generally be kept in a supple condition. The addition of a little glycerine to the bath is in the milder cases alone efficacious.

CONGENITAL ICHTHYOSIS, HARLEQUIN FŒTUS

This is a very rare condition in which an infant is born with ichthyosis, and dies usually a few hours or days after birth. The whole body surface is covered with closely set thick epidermic plates—hence the term Harlequin fœtus; the clefts between the

plates often extend as fissures into the corium; the eyelids and lips are fixed, and the nose and the ears are atrophied. The child dies from starvation owing to its inability to suck.

Hebra regarded this condition as due to a dried sebaceous secretion, but most authorities are now agreed that it is mainly the result of an abnormal thickening of the horny layer of the epidermis, though the exact relationship, if any, of this affection to the form of ichthyosis which develops later in life is not yet determined.

Other less severe cases have been reported in which the scales are thinner, like a cracked layer of collodion, which after a time may peel off, leaving the skin quite normal. It has been suggested that such cases are not true ichthyosis, but that they are due to persistence of the epitrachial layer, which normally should be cast off in the seventh month of foetal life.

ICHTHYOSIS CONGENITALIS PALMARIS ET PLANTARIS

A rare affection in which there occurs a horny thickening of the palms and soles,—sometimes in several members of one family and often through a number of generations.

The two following maladies, although not always strictly congenital, may be conveniently included in this chapter.

SCLEREMA NEONATORUM

(‘Hide-bound’ of Underwood)

This rare affection of new-born babies is characterized by a hardening and rigidity of the skin, and by a general lowering of vitality, manifest by diminished pulse rate and respirations and by marked fall of temperature. Infants affected are usually feeble and atrophic, and often prematurely born. They usually die.

The hardening of the skin may begin before birth or within a few days of birth, exceptionally later. The change starts usually in the lower extremities and spreads upwards to the limbs and body and face, and soon becomes universal. Less often it begins in other parts. The skin becomes hard, smooth, and tightly stretched round the parts beneath, to which it appears to be firmly adherent; it becomes as rigid as wood, and does not pit on pressure; it is of a dirty yellow colour, though the extremities may be cyanosed. The limbs become immobile, and sucking may be prevented by the stiffness of the face. The temperature is subnormal, below 90°, and towards the end below 80°. The infant is apathetic and somnolent, and it

may be jaundice or be attacked with diarrhoea. These are the classical cases. They are rare, but so striking that nearly always one or two are reported in the medical journals each year.

Cases of a milder type are occasionally shown at the Meetings of Societies in London in which the hardness is not universal, but in patches with sharp margins, like pieces of board or metal let into the skin. The whole abdomen or back may be involved, with round or oval patches upon the face and limbs. These cases are generally in somewhat older infants ; the lowered vitality is not so marked, and they sometimes recover.

ETIOLOGY AND PATHOLOGY. The affection is regarded as dependent upon malnutrition from bad feeding ; or it may follow diarrhoea or other debilitating disease. The immediate cause is not known, though the anatomical changes indicate a drying up of the tissues : the prickle-cells of the epidermis are shrunken and form a compact consolidated mass ; the fat cells are atrophied and deprived of fat, while there is an apparent (or, according to some, a real) increase of connective tissue fibres.

DIAGNOSIS. The condition must be distinguished from oedema neonatorum with which it was formerly confounded. The points of distinction and resemblance will be noted presently.

TREATMENT consists in maintaining the body temperature and nutrition. The infant must be wrapped in cotton-wool and surrounded with hot-

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water bottles, and if unable to suck must be fed through a tube.

ŒDEMA NEONATORUM

This is probably a still more rare affection than sclerema neonatorum, a disease with which it was formerly confused, and with which it has certain features in common. Like sclerema, it is a disease of new-born infants who are debilitated. The infants are apathetic or drowsy, with feeble pulse and respirations and subnormal temperature. The skin condition, however, is different: it begins usually in the lower limbs and affects particularly the lower half of the body, and notably the penis and scrotum or vulvæ; it may affect also the face; sometimes it is confined to the extremities. The skin over parts affected becomes swollen and tense; the swelling is doughy and pits on pressure at first, but from extreme tension it may become hard and shiny so as to simulate sclerema. The swelling on the soles and palms is often so marked that these parts become convex. The colour is cold and dull red or bluish and mottled. Mobility becomes interfered with. Recovery is exceptional.

ETIOLOGY AND PATHOLOGY. Like sclerema it occurs in feeble or prematurely born infants. It has been suggested that puerperal infection may play a part. Cardiac, renal, or pulmonary disease has been found

after death. There is a true œdema of the tissues ; when incised a yellow serous fluid escapes ; the tissues are infiltrated with serous fluid, and the fat, which is not diminished in quantity, is solidified and brownish in colour—all of which conditions contrast strongly with the desiccation of tissues which occurs in sclerema.

DIAGNOSIS. Œdema neonatorum is thus characterized by swelling of the skin and subcutaneous tissues, most marked in the lower extremities ; by its livid colour, pitting on firm pressure, and by less restricted movement of limbs : Sclerema by its waxy colour, shrunken and board-like skin, and immobility of the limbs.

TREATMENT. The treatment is the same as for sclerema.

CHAPTER II

AFFECTIONS OF CONGENITAL ORIGIN

(continued)

THE SKIN ERUPTIONS OF CONGENITAL SYPHILIS

THE subject of congenital syphilis is fully treated in most of the textbooks on diseases of children ; for this reason I shall here confine myself chiefly to the consideration of the skin eruptions—which are such common manifestations of this affection. An acquaintance with these eruptions is of great practical importance, for often a diagnosis has to be made upon the appearance of the skin lesions alone.

Congenital syphilis may show itself at various periods. (1) It is well known that syphilis transmitted from parent to offspring very often leads to death of the foetus, and to consequent miscarriage or abortion : the foetus is then delivered, often in a decomposing condition, with macerated and separating cuticle, and sometimes with visceral gummata. (2) On the other hand, in many pregnancies the child reaches full term, and is delivered alive ; and then, as a rule, it is born apparently healthy, and shows no symptoms until some four to six weeks, or longer, after birth. Very

rarely indeed does it happen that a syphilitic child is born alive and yet showing signs of syphilis. When this rare event does occur, the child almost always presents a characteristic eruption, viz. a bullous eruption, which is known as 'syphilitic pemphigus'.

The bullous syphilide (*syphilitic pemphigus*). The infant may be born with this eruption, or it may appear during the first few days of life. The lesions may be tense bullæ containing serum, pus, or blood, and set on a deep red base, or having a reddish-brown halo; more often the bullæ are flaccid, and quickly dry up to form dusky red areas, either excoriated or dry, and upon which the separated epidermis lies as a crumpled brown crust; or tense bullæ and dried-up bullæ may be present together. Imperfectly formed or abortive bullæ may also be seen as reddish-brown discs or broad, flat papules. All of these lesions are seen most often upon the hands and feet, and notably upon the palms and soles; they may occur also upon other parts, often on the face around the mouth, and sometimes on the body; in very severe cases they may be almost generalized, but wherever else they occur they are always present upon the palms and soles. Sometimes a bulla occupies the end of a finger or toe, affecting the nail, which becomes separated and blackened. Infants with this eruption are almost always wasted, and in most cases they die. This eruption, which, as has been stated, is extremely rare, *must be distinguished from pemphigus neonatorum*, which is due to local coccic infection. In making a diagnosis the main

points in favour of the syphilitic eruption are: the brownish coloration of the eruption—reddish-brown plaques, or flat papules, which are often seen associated with the bullæ; the occurrence of the lesions upon the palms and soles; that there is no improvement under local antiparasitic (non-mercurial) treatment; the wasted condition of the infant. Suggestive of pemphigus neonatorum are: the well-nourished condition of the baby; the appearance of the eruption not at birth, but some few days afterwards; the non-implication of the palms and soles, and evidence of contagion—impetigo or whitlow—in parent or nurse.

Eruptions appearing some weeks after birth. In the large majority of cases, when a living child is born of syphilitic parents it remains healthy, or apparently healthy, until it reaches the age of about four to six weeks. At this time it begins to develop the characteristic nasal affection known as '*snuffles*', which is due to inflammation of the lining membrane of the nose; at the same time it often becomes restless, and, from being plump and well nourished, it may begin to lose flesh. With these symptoms there may be *fissures of the lips*, bilateral upon the upper lip, and median upon the lower, i. e. at the seat of the natural fissures or clefts. Shallow ulcerations upon the mucous membrane of the mouth and upon the palate may sometimes also be discovered, if carefully looked for. Laryngeal inflammation, indicated by a *hoarseness of the cry*, is a common symptom, and one of considerable diagnostic impor-

tance. Very soon after the 'snuffles' certain **SKIN ERUPTIONS** commonly make their appearance, and these are by far the most constant manifestations of congenital syphilis. The most common type of skin eruption is in the form of flat disc-like, circular, or oval circumscribed areas, first red in colour, and later of a brownish tinge, commonly about the perineum, thighs, and lower abdomen and buttocks, and sometimes upon the face and upon the palms and soles. Writers are accustomed to divide the eruptions into erythematous, papular, scaly, vesicular, or pustular; and certainly the lesions may be erythematous and macular in one case, raised flat papules in another, scaly in another, or even in a few instances raised into vesicles or bullæ: but the essential features of the lesions are their flat circumscribed disc-like appearance and their more or less deep tinge of coppery-brown; while, whether they are macular, papular, vesicular, or scaly, seems to depend rather upon a difference in intensity of the inflammation than to represent any essential difference in the lesions. In some cases the lesions have a tendency to form circles by spreading at the margin while fading in the centre, and by coalescence of circles gyrate figures may be formed. But this character is, as a rule, not so marked in infantile syphilis as in acquired syphilis in adults. In parts where the lesions are most abundant, as upon the buttocks and thighs, they often run together into large, uniform surfaces, with isolated lesions still showing at the margin. On the face the lesions occur

particularly about the forehead and around the mouth ; and here also they may form a circumscribed sheet, often fissured in radiations extending from the mouth on to the lips, which are excoriated and desquamating. On the *palms* and *soles*, which are characteristic situations for the eruption, the lesions form circumscribed smooth and shiny, deep red-brown areas ; or occasionally even bullæ may be found here. When the lesions occupy situations near the mouth or anus, or in the flexures, as of the neck or groin, they may become sodden and excoriated and simulate mucous tubercles ; though true mucous tubercles are not seen at this period. Such are the main characters of the eruptions of congenital syphilis. It must be borne in mind that they may vary in intensity and in extent of distribution, from macules or papules, to, less commonly, even vesicles or bullæ, and from a few isolated lesions about the face or between the folds of the buttocks, and perhaps upon the palms and soles, to the extensive involvement of these areas, and even almost complete generalization. As has already been stated, these eruptions are by far the most common symptoms of congenital syphilis, sometimes possibly they may be overlooked, but it is probable that they are seldom absent altogether : they may occur practically alone, or in association with snuffles, or with fissures of the lips ; more rarely they may be associated with, or perhaps followed by, other symptoms indicating lesions of bone or of viscera.

VISCERAL LESIONS. The percentage of such

lesions, sufficiently marked to produce symptoms, is probably small. Among those more commonly observed are *nodular swellings of the long bones, enlargement of the liver, and swelling of the testicle*. Craniotabes and the nodular swellings of the skull are not peculiar to syphilis; nor is enlargement of the spleen, which may often be found in these cases. Nodular enlargements at the ends of the long bones and syphilitic dactylitis may be met with at the same time as the skin eruptions, or they may occur, and perhaps less rarely so, after these eruptions have disappeared. When the swelling is little marked, attention may be first drawn to the condition by the pseudo-paralysis of the limb. The morbid condition of the bones, which leads to the nodular swellings, is said to exist in a lesser degree in all cases of congenital syphilis, and to begin at a very early stage of foetal life.

Enlargement of the liver, due to interstitial hepatitis, is not an uncommon symptom. Swelling of the testicle may be discovered in a fair percentage of cases. Iritis is a very rare complication.

GENERAL CONDITION. As regards the general condition of the infant, the wasted 'old-man' appearance, so often described, is comparatively infrequent; more often the child is well nourished until the appearance of symptoms, though it may begin to lose flesh as soon as they appear. In many cases, no doubt, the loss of flesh is due to the inability to suck on account of the blocking of the nostrils

by inflammatory swelling and discharge. In many instances the general health appears little affected. If the disease is severe and untreated, the child may waste rapidly, and this is of bad prognosis.

LATER MANIFESTATIONS. After the appearance of these early eruptions a child seldom presents any later skin lesions. Sometimes, however, recurrences are met with in the form of mucous tubercles about the mouth or anus. These recurrences take place most often at about the age of two years and onwards. When about the anus, the lesions may sometimes be large projecting masses ulcerating at the centre. Breaking down gummatous ulcers also occur at a later period of childhood, but they are very rare.

The well-known signs of hereditary syphilis—the Hutchinson teeth, the sunken nose, the radiating scars at the angles of the mouth, and interstitial keratitis—are seen later in childhood. They are the result of various inflammatory lesions of an earlier age. There are no skin manifestations at this time.

ETIOLOGY OF CONGENITAL SYPHILIS. Congenital syphilis, although often called hereditary syphilis, is properly not an inherited disease, but is an infection of the embryo or foetus from one of the parents. There is now very strong evidence that the recently discovered *spirochæta pallida* of Schaudinn is the specific micro-organism. The *spirochæta pallida* has been found in cases of congenital syphilis in the viscera and in the skin lesions.

PROGNOSIS IN CONGENITAL SYPHILIS. Many

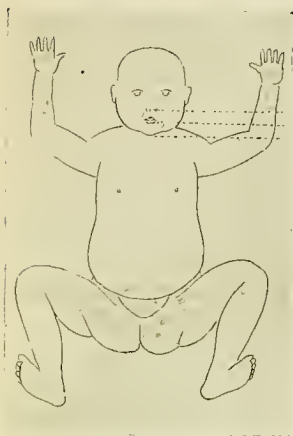
Continental authors give a very grave prognosis in congenital syphilis, their statistics showing that the greater number of affected infants die. This I am convinced is too pessimistic a view: my own experience is quite opposed to it, for among cases seen in the skin department of a children's hospital, a fatal issue is quite exceptional, and I have only known it occur in infants who are already much wasted when first brought for treatment. The majority are apparently little affected in general health, and often the only signs of syphilis are the characteristic eruption and snuffles, both of which commonly clear up under a short course of mercurial treatment. There is seldom any relapse, and years afterwards these children are found to be quite well. A few cases return at a later period—at about two years of age and onwards—with mucous tubercles about the mouth or anus.

On the other hand, when an infant is wasted when it first comes under treatment the prognosis is serious. Prognosis of course is graver, too, in those exceptional cases where visceral lesions are present.

DIAGNOSIS. It frequently happens that the diagnosis of congenital syphilis must be made solely upon the appearance of the rash; but generally there are other symptoms which help us, or there may be evidence of the disease in the parents. Nasal catarrh and hoarseness of the cry and fissuring of the lips are the most common of the accompanying symptoms. Syphilitic epiphysitis or enlargement of the testicle are rare.

40 SKIN AFFECTIONS OF CHILDHOOD

Craniotabes, and enlargement of the spleen or liver, may occur in other conditions. It is a very common mistake to conclude that any eruption about the buttocks and genitals of a baby is probably syphilitic, or to regard any kind of ulcerative eruption in an infant as such. In coming to a conclusion as to whether an eruption is syphilitic or not the following points



Snuffles
fissures
hoarse cry.

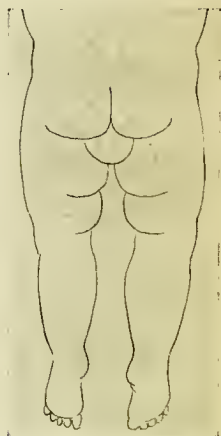


FIG. 1. Distribution of lesions—
congenital syphilis.

FIG. 2. Simple erythema.

should be borne in mind :—*age of the patient*—that the eruptions of congenital syphilis are commonly seen between the ages of six weeks and three months, and that eruptions occurring later than at six months of age are probably not specific ; *distribution of the lesions*—that the distribution of the specific eruption is commonly about the genitals and buttocks, around

the mouth, and on the palms and soles (Fig. 1); *form and colour of the lesions*—that the lesions are as a rule comparatively small (from a quarter of an inch to one inch in diameter) and have sharply circumscribed margins, only forming larger areas by coalescence; that their colour has a tendency to reddish-brown (or ‘copper colour’) which is in contrast with the brighter red of other inflammatory eruptions. The affections most likely to be mistaken for syphilitic eruptions are simple erythemas about the buttocks, impetiginous eruptions, and seborrhœic eczema in the napkin region; while the ulcerative lesions of the somewhat rare vacciniiform dermatitis are not always easily distinguished from those of congenital syphilis.

Simple erythemas occur about the convex surfaces of the buttocks, of the inner and posterior parts of thighs, and of the genitals, and often upon the calves and heels, or shoulders and elbows, either as uniformly dusky red shiny areas, or, on the buttocks, thighs, and scrotum as circular or oval flat papules, which becoming excoriated form shallow ulcers. These



FIG. 3. Seborrhœic or impetiginous dermatitis.

eruptions are most marked upon parts which are points of pressure, that is to say upon the back of the buttocks and thighs and upon the scrotum where it is rubbed by the napkin. Other symptoms of syphilis are absent, and lesions do not occur upon the face, nor upon the palms and soles; there is no coppery tint; and the eruption varies in intensity from day to day. With the papular-ulcerative forms, the diagnosis may however be difficult, and it can often only be made as a result of treatment (Fig. 2).

Impetigo about the napkin region affects particularly the flexures, but often a larger area corresponding to the whole of the parts covered by the napkin, namely the lower abdomen, the buttocks, and upper parts of the thighs. The area is bright red and shiny, excoriated and moist in parts, particularly in the flexures. The margins of this area are phlyctenular, that is to say the epidermis is here raised and has beneath it a certain amount of turbid serum. Beyond the margins are smaller areas, excoriated, phlyctenular, or crusted; and on other parts are other lesions of an impetiginous type—phlyctenular around the nail, raw surfaces behind the ear, or typical crusted impetigo lesions. Often another child in the family has ordinary impetigo contagiosa (Fig. 3).

Seborrhœic dermatitis, probably like the latter of microbic origin, favours also the flexures and the napkin region of the infant. In distribution it is like impetigo, but instead of glazed or raw areas, it forms circumscribed red sharply margined patches, more

or less moist, but covered with greasy looking yellowish scales. As with impetigo the eruption may occupy only the flexures, or the whole napkin region—lower part of abdomen, buttocks, and thighs—in one large sheet, while there may be similar areas in the axillæ, or on the side of the neck. There may, too, be circumscribed patches upon the cheeks, and around the mouth and nose, and the mother is almost invariably affected with marked ‘seborrhœa capitis’ (Fig. 3).

Vacciniiform dermatitis. In this rather rare affection there may be from three or four to a dozen or so sharply margined circular excoriations or shallow ulcers, of from a quarter of an inch to half an inch in diameter, situated about the genital or perineum. The lesions begin as vesicles, and generally one or more of such early lesions are present, and there are no coppery coloured macules or papules.

TREATMENT. The treatment of congenital syphilis in infants is the same as that of acquired syphilis in adults, the dose of mercury being adjusted to the age. Infants and young children bear mercury well, and a baby of six weeks may be given $\frac{1}{4}$ – $\frac{1}{2}$ grain of mercury and chalk three times a day. The most convenient form of administration is in the form of a powder with a few grains of sugar of milk. If diarrhœa be produced, which is unusual, $\frac{1}{4}$ grain of Pulv. Ipecac. Co. may be added to each dose. Or calomel $\frac{1}{10}$ grain may be given instead of grey powder. Administration by the mouth is, I think, preferable to inunction. The latter method is preferred by many, but there is some

risk of local dermatitis, and, moreover, it is less easy to regulate the dose. Inunction, however, may be useful combined with mouth administration in cases in which it is necessary to act quickly. Unguentum hydrargyri may be applied to the abdomen upon a flannel binder, or a small piece may be rubbed into the inner side of the arm and thigh alternately each evening.

Local treatment of skin lesions is seldom required as they usually clear up rapidly under mercury treatment.

A point of prime importance is the proper feeding of the infant, and whenever possible the natural method of nourishment should be enforced; but if from obstruction in the nose the child is unable to suck properly systematic spoon-feeding must be at once substituted for the breast. Sometimes there may be no signs whatever of the disease in the mother, and then, unless the child's mouth and lips be quite free from lesions, I do not think that one is justified in insisting upon maternal feeding. As to the employment of a wet nurse, although it is possibly true that they very seldom become infected by syphilitic infants, one ought not to recommend this method of nourishment.

The treatment by internal administration of mercury should be continued as long as there are any symptoms, and for some months afterwards; and during the next two years, watch should be kept for any return. In the treatment of later lesions and of

visceral lesions, potassium iodide may sometimes with advantage be administered along with mercury. The condylomata which are apt to appear about mucous orifices, especially near the anus, at about two or three years of age are often obstinate, and it may be necessary to use active local applications, such as the acid solution of nitrate of mercury of the Pharmacopœia, under an anæsthetic.

ACQUIRED SYPHILIS IN CHILDREN

Infants and children may suffer also from *acquired* Syphilis ; and although the condition is very rare it must be borne in mind, especially when specific eruptions are seen in late infancy or in later childhood. A child may be infected from a parent who has contracted Syphilis subsequent to its birth, or from the nurse or others. Inoculation takes place by kissing, from the nipples of the nurse, from contaminated food utensils, &c., and the primary sore is usually therefore about the lips, in the mouth or on the face—more rarely it is upon the lower abdomen or about the perineum. The symptoms do not differ from those of Syphilis in adults. Diagnosis can only be made with certainty when a chancre is present—except in the presence of an obviously specific eruption in a child who has passed the age at which the eruptions of Congenital Syphilis appear.

CHAPTER III

ERUPTIONS DUE TO LOCAL PHYSICAL CAUSES

THE part played by local physical agents in the production of skin eruptions is an important one. The normal skin is, by its construction, protected from minor attacks to which it is continually exposed: it is only when the action is excessive that it succumbs; injury to the extent of destruction of tissue may occur, or there may be local damage to blood-vessels, producing petechiæ and ecchymoses; or various stages of reaction may result showing themselves as erythema, urticaria, vesicles, bullæ, &c., or if the irritation be long continued, pigmentations and thickening of horny tissue. The physical agents which may produce these lesions may be mechanical, thermal, photal, or chemical.

But the influence of local physical agencies does not cease here; their more important part is played in conjunction either with some agency within which predisposes the skin to injury from outward attacks; or with local microbial infection. Under various conditions the resistance of the skin to these local attacks may be so lowered that an injury, a degree of heat, or

of cold, or of light, which on a normal skin would have little or no effect, may then produce eruptions varying in type according to the particular direction in which the resistance has been lowered; as examples, may be mentioned, chilblains, where a predisposing condition of feeble circulation renders the organism vulnerable to the action of cold even of a moderate degree; eczema, in which some ill-understood predisposing condition, possibly resulting from some form of auto-intoxication, makes the skin peculiarly susceptible to local irritants; epidermolyosis bullosa, in which an inherited malformation of the skin leads to the formation of blisters as the result of the slightest traumatism; hydroa aestivalis, in which there is an inherited, or possibly an acquired pre-disposition to the action of light rays; and so on.

Or the local action of physical agents may be combined with that of microbes, as in the association of streptococcic impetigo contagiosa with various pruritic eruptions, or of staphylococcic follicular pustules with the action of chemical agents, as in tar acne.

It is unnecessary here to describe in detail all the various eruptions that may result from the simple action of different local irritants. I shall merely give a summary of these, and deal more fully only with the more common and important.

48 SKIN AFFECTIONS OF CHILDHOOD

MECHANICAL, THERMAL, PHOTAL, AND CHEMICAL AGENTS WHICH MAY PRODUCE LESIONS IN THE NORMAL SKIN IN CHILDHOOD

Mechanical agencies. Blows, pinches, frictions, &c., leading to ecchymoses, petechiæ, erythemas, abrasions, blisters, or wheals; or by more continued action to callosities and corns.

Heat. The various stages of burns.

Cold. Frost-bite and chilblains (in predisposed subjects).

Light (ultra-violet rays). *Erythema solare* or sunburn; *ephelides* or freckles; bronzing. The inflammatory reaction of the Finsen light.

X-rays. Alopecia and various stages of X-ray dermatitis.

Chemical, vegetable, and animal irritants

(1) *Drugs applied locally.* Mustard—erythema; epispasticus—blisters; iodine—erythema and desquamation; chrysarobin—erythema; croton-oil—pustular dermatitis; tar—acneiform eruption; formalin and sulphur—eczematoid eruptions.

(2) *Clothing.* Erythematous and vesicular eruptions due to aniline dyes and arsenic.

(3) *Plants.* Nettle, primula, ground-ivy—urticaria and vesicular eruptions.

(4) *Insect stings.* Bees, wasps, bugs, fleas, caterpillars—erythematous and urticarial.

INTERTRIGO

Intertrigo or chafing is the name given to excoriations which may be produced under certain conditions in regions where two surfaces of skin come into contact. Such lesions are frequently seen in hospital practice: among infants whose skins receive ordinary care they do not occur, except occasionally in very fat babies. They are due to the combined rubbing together of the surfaces, and to the irritation of various discharges; they occur, chiefly, in the groins and between the buttocks and on the sides of the scrotum, from irritation by *fæces* or urine, or in the folds of the neck, from irritation by liquid foods. The lesions begin as an erythema, and then the superficial epidermis becomes moistened and rubbed off leaving a raw moist surface. If neglected these excoriations may rapidly become infected by micro-organisms and spread beyond the actual folds; and ulcerations may occur in the groins, on the sides of the scrotum, or between the folds of the buttocks. Indeed, in practice, it is often very difficult to draw the line between a simple intertrigo due to local irritation, and impetigo or eczema or other eruptions occurring in the flexures; for the lesions of almost any eruption in these situations become excoriated.

**ERYTHEMATOUS ERUPTIONS ABOUT THE
NAPKIN REGION IN INFANTS** (*Dermites
infantiles simples* of Jacquet)

There is another form of eruption which is seen about the buttocks and neighbouring parts in infants, bearing possibly a close relationship to Intertrigo just described, but which affects the convex-surfaces between the flexures rather than the flexures themselves. In its *simplest form* this is an erythema which may be limited to the upper and inner parts of the thighs, and to the perineum and genitals; or it may be also spread in large areas over the buttocks, the inner and posterior surfaces of the thighs, sometimes on the lower part of the abdomen, and often also upon the calves and heels.

The erythema is deep red and shining, and the manner in which it affects only convex areas and leaves out the flexures—the groins, the fold between the abdomen and the pubes, and that between the buttock and the thigh—is often most striking. In the *more severe cases* there appear, as sequelæ of the erythema vesicles, flat papules or ulcerations. These are seen notably at the highest parts of the convex areas, which correspond to points of pressure when the infant is lying on its back, namely, over the buttocks, the backs of the thighs, the scrotum, and perineum (Fig. 4).

The peculiar distribution of this eruption suggests very strongly local irritation by a wet or soiled

napkin, which would come into contact with all these parts—for the heels and the calves of a baby are constantly in close contact with the napkin, and the perineum and scrotum are rubbed by the fold of napkin which is brought forward between the legs. The causation would thus be analogous to that of Intertrigo. The eruption is most often seen in neglected children of the poor. But it may occur also in apparently well cared for children; and some observers have in consequence denied that local irritation is the sole or even the chief cause, incriminating intestinal, gastric, and dental troubles acting reflexly through the vaso-motor system.

These eruptions have attracted the attention of such great clinicians as Trousseau, Henoch, and Parrot; but of late years, owing chiefly to the writings of Jacquet in France, they have been more prominently brought forward. Jacquet has named them '*Dermites infantiles simples*', a term which covers the different varieties which he describes (1) Simple erythematous, (2) Erythemato-vesiculous, (3) Papular, (4) Ulcerative. The papular or 'lenticular' form, according to Jacquet first described by Trousseau, and the ulcerative form

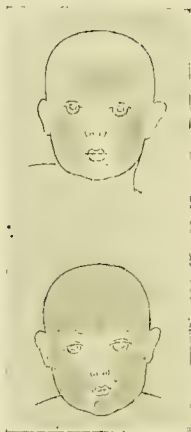


FIG. 4.

were mistaken by Parrot, who gave accurate descriptions of both, for congenital syphilides.

DIAGNOSIS OF INTERTRIGO AND OF SIMPLE ERYTHEMA. The diagnosis of Intertrigo and of Simple Erythema from other eruptions in this region is sometimes easy, sometimes very difficult. They must be distinguished from intertriginous Impetigo, from Eczema seborrhoicum, and from Congenital syphilis. More important, however, than the diagnosis of what may be termed the non-specific eruptions from one another is the diagnosis between these and congenital syphilis.

I have already discussed the diagnosis of the eruptions of congenital syphilis from other affections, about the buttocks and incidentally of these affections from one another, and need not refer to these points again (*vide p. 41 et seq.*).

TREATMENT. The first consideration in the treatment of these eruptions is the avoidance of local irritation. If the child is evidently not properly cared for, regular washing and frequent change of napkins must be enforced; but the washing must not be too frequent, and strong soaps must not be used; care must be taken that the napkin is not applied too tightly, and it must be of a soft material. In places where there is friction a thin layer of Lassar's paste may be applied in preference to toilet powders. Where there is ulceration boric acid may be added to the bath and white precipitate ointment (*gr. v. ad ̄i*) applied to the sores. The digestion and bowels must be attended to,

CHILBLAINS AND FROST-BITE—ERYTHEMA PERNIO

Chilblain may be defined as a localized and persistent exudative erythema, occurring on the extremities in predisposed subjects as the result of the action of a moderate degree of cold. Frost-bite is produced when the cold is more severe.

The action of cold upon the skin is not, as is often supposed, analogous to that of heat. Cold, unlike heat, produces no inflammatory reaction, but merely a temporary anæmia followed by a temporary hyperæmia. The normal skin, as is very well shown in the use of ether-spray, may be actually frozen, without any subsequent inflammatory action. It is only when the freezing is prolonged beyond the normal reaction time, as in the case of frost-bite, that damage is done. Chilblains do not result from cold in persons in health; there is always a predisposing condition of feeble circulation, clinically manifest by coldness of extremities. It has been suggested that there is a condition of defective blood coagulability.

The affections set up by the action of cold differ not only in their pathology, but also clinically, from those the result of the action of heat. They are characterized by the slowness of their course, and by the continuance of the lesion long after the immediate cause has been removed.

SYMPTOMS. Chilblains consist of circumscribed, livid red, intensely itchy patches which appear especially on the fingers and toes, on the sides of the feet,

or on the heel, and on the ears, and less often on the nose and other parts of the face. The colour of the patches disappears momentarily upon pressure, and when the part becomes hot it changes from a livid red to a bright red. They occur chiefly during damp cold weather and in persons of feeble circulation. They are commoner in children and old people than in adults. They may continue in the condition described for some long time and subside upon the appearance of warmer weather. In neglected cases or under the influence of friction or pressure of boots the epidermis may become cracked or eroded, or vesication may occur, and these conditions may be followed by superficial ulceration and scarring.

DIAGNOSIS. The appearance of chilblains is so familiar that there is seldom any difficulty in recognizing them.

TREATMENT must be directed towards improving the circulation by the administration of cod-liver oil, by iron, and by regular active exercise. Children who suffer from chilblains are often benefited by warm milk taken at the midday meal and at bedtime. The hands and feet must be warmly covered, and care must be taken that the boots are not tight. Hot water must be used for washing. Arsenic in small doses often proves useful not only as a curative agent but as a preventative. Calcium chloride may be given in doses of ten grains in sugar-water every four hours for two days; then an interval of several days, and the dose repeated if necessary.

Locally iodine is one of the most efficacious remedies; it may be applied in the form of tincture of iodine painted on daily; or as vasogen iodine well rubbed in. Other stimulating applications which may be used are the compound liniment of camphor, or tincture of capsicum. Such applications must not be used for broken chilblains. For these boric acid fomentations followed by boric acid lotion, and, if possible, rest in bed is a suitable treatment.

Frost-bite does not often occur in this country. It may be regarded as a more severe kind of chilblain. Two forms are described—(1) that in which bullæ are formed, the bullæ subsequently breaking and disclosing the tissues destroyed to a greater or less extent beneath; (2) that in which a gangrenous eschar is produced at once, destroying the soft parts often to a considerable depth.

SUMMER ERUPTIONS

HYDROA ÆSTIVALIS of Bazin: SUMMER PRURIGO of Hutchinson

Under these titles there have been described two forms of eruption having certain features in common, namely, that they occur chiefly upon exposed parts, the face and hands, and after exposure to strong sunlight. The eruptions begin in early childhood, recur in the summer months, and fade during the winter. The lesions vary from small papules and papulo-vesicles in the mild cases of 'summer prurigo',

to large vesicular or bullous, scabbing, and scar-leaving lesions in the severe forms of 'hydroa æstivalis'. The severe vesicular and bullous scar-leaving eruptions are rare, the papulo-vesicular pruriginous eruptions less so. When once established the eruption lasts through life, or at any rate into adult age. The papular eruption often occurs also upon parts which are covered—the legs and arms; the more severe lesions are limited to the face and hands. The cause of this affection is unknown: that the ultra-violet rays may and do act as a strong exciting cause has been proved by observation and by direct experiment, but the reason of this peculiar susceptibility to light is not known; nor is it certain that light rays are the only exciting causes, since sometimes the eruption appears after exposure to strong winds and upon covered parts.

GROUPED COMEDONES IN CHILDREN

Acne vulgaris is an affection of puberty, and with it we are not here concerned. There is, however, a not very rare affection of infants and children in which comedones occur in groups either upon the face or upon the chest or back. In these cases, over a circumscribed area of varying extent, each follicle is plugged with a firm apparently horny plug often having a blackened top. Around the plug there may or may not be an inflammatory swelling, forming an acne-like papule with a blackened plug at its apex. Sometimes the inflammation goes on to

suppuration and a papulo-pustule results. These patches occur upon the forehead and temples, often, unlike true acne, extending for some little distance on to the scalp; or they may occur upon the cheeks, or upon the chest or the back. They often give rise to considerable itching. Their *pathology* is unknown, but they mostly occur among uncleanly people, and there is often a history of the application of some dirty remedy such as a Russian tallow plaster, of a chest protector worn, or of a liniment rubbed in. When occurring upon the forehead, it has been suggested that the lesions correspond to the position of the cap in boys, and when on the cheeks, to irritation from the mother's clothes. It has been known to occur in several members of one family. Boys are said to be more often affected than girls. The bacillus of acne is not found in these comedones, but the 'bottle-bacillus' can be demonstrated in abundance. The *treatment* of this affection is simple. Removal of any discovered local irritant and thorough scrubbing with soft-soap is generally sufficient for their speedy cure.

SUDAMINA

Sudamina is a transient eruption of quite superficial, minute, and perfectly transparent vesicles which may occur sometimes in acute febrile illnesses. They are due to the collection of minute drops of sweat in the superficial horny layers of the epidermis. They are purely mechanical and unaccompanied by inflamma-

tion ; they are associated usually with a dryness of the skin rather than with excessive sweating. They have the appearance of drops of water on the skin ; usually they are small, pin-head sized ; but several may run together to form a comparatively large superficial blister. This eruption is generally most abundant upon the chest and back. The vesicles rupture after a few days, and are followed by a branny desquamation.

This affection requires no treatment.

MILIARIA

Miliaria is also a benign eruption, closely related to sudamina, but distinguished by the fact that it is associated with hyperidrosis and accompanied by inflammation and by itching. The eruption consists of discrete small red papules, each having a minute apical vesicle. It is seen mainly in the hot weather in infants who are too warmly clothed or 'swaddled up' about the head and face, and chiefly upon the forehead, neck, and front of the chest. It is thought by some that the inflammatory papule is possibly due to microbic action rather than to simple sweat irritation. The distribution of the eruption and the absence of urticarial element distinguishes it from lichen urticatus. The *treatment* is to remove the cause and apply a mild antipruritic lotion or a dusting powder.

CHAPTER IV

ERUPTIONS DUE TO ANIMAL PARASITES

THE most important of the animal parasites which may lead to eruptions of the skin in children are the *acarus of scabies*, and the *head-louse*. The bites of the common *flea* (*pulex irritans*) may, in some children, produce decidedly erythematous or urticarial patches, or even petechiæ, which, however, are easily distinguished by a central dark spot corresponding to the puncture. The bites of the *bed-bug* (*cimex lectularius*) produce a red wheal with a whitish centre, and a central purpuric spot. *Gnats* (*culex pipiens*) may produce wheals followed by large firm red papules, which may be puzzling as skin eruptions unless the source be known. Certain *caterpillars* may also give rise to sometimes extensive urticarial eruptions.

PEDICULOSIS

Pediculosis of the scalp is extremely common among children of the poor. In many instances the presence of the parasites and their ova upon the hairs appears to lead to no symptoms; in others there is marked itching; and in others the infection is complicated by

impetigo contagiosa. Except in very severe cases, the ova are the most prominent feature, and they occupy principally the occipital region, where they are seen on the hairs as small oval whitish bodies. The parasite itself is not so evident in scalps which receive a certain amount of care, and often only one or two can be seen creeping between the hairs; but in neglected cases the whole scalp may be swarming with lice. The *head-lice* is greyish in colour, it measures about $1\frac{1}{2}$ to 3 mm. in length, is of an elongated oval shape, having six legs provided with claws, coming off from the anterior thoracic portion. It is about one-third smaller than the body-lice, but the female is considerably larger than the male. The *eggs* or *nits* are minute, dirty white, pear-shaped bodies, visible to the naked eye, and seen upon the shaft of the hair, to which they are attached by a tube-like structure which completely encircles the hair. The reproductive capacity of the parasites is very great. One female will lay about fifty eggs, each egg hatches in a week, and in two weeks more the young are sexually active.

The *impetigo which often complicates pediculosis* is also seen chiefly in the occipital region, though it may spread beyond to the rest of the scalp, or on to the neck and face. It is of the impetigo contagiosa type and is of streptococcic origin. It is probable that infection takes place by the nails while scratching. Owing to the presence of hair, the amber crusts adhere and become much heaped up, and they may be dark-

ened from admixture with blood; or they may entangle the hair into felted masses beneath which offensively smelling secretion collects.

DIAGNOSIS. Care must be taken not to mistake the scales of scurf or pityriasis for the ova of pediculi. The latter are easily distinguished by the fact that they are firmly attached to the hair by a chitinous sheath, along which they can be made to slide, but from which they cannot be detached. Impetigo of the occipital region of the scalp should always arouse suspicion of pediculosis.

TREATMENT. In cases of pediculosis unaccompanied by impetigo, a few washings with soap and water, to which has been added a little paraffin oil, is usually sufficient to destroy both lice and nits. Where there is impetigo it is generally necessary to cut the hair short over the area affected. The crusts are then removed by frequent bathing with hot water, and white precipitate ointment subsequently applied. In very severe cases, the whole of the hair must be cut short or shaved, and boric acid fomentations applied, followed by ointments.

Pediculosis corporis is very rarely seen in children.

Pediculosis palpebrum, in which nits and lice occur upon the eyelashes, is occasionally seen in skin departments, though it is more frequently met with in ophthalmic practice. The ova are attached to the hairs like chains of beads, while the parasite is generally seen clinging to the hair towards its base. They are said always to be due to the *pediculus*

pubis. The simplest *treatment* is to remove the parasites and ova with forceps.

SCABIES

Scabies in children, and more especially in babies, presents, from a clinical point of view, special features which demand attention. Essentially it is the same disease as in adults, and is due to an acarus, the *sarcoptes scabiei*. Its pathognomonic lesion, the *burrow*, is produced by the female, who lives in the epidermis, and there deposits her eggs.

Scabies is of very common occurrence in infants and children in hospital and in dispensary practice; but it is not altogether wholly confined to this class of patient, and may often be seen in children of the better class. Epidemics occasionally occur in institutions.

SYMPTOMS. The affection is characterized by *nocturnal pruritus*, and by the *burrows of the parasite*, to which may be added eruptions of an impetiginous or of an eczematous type. The *burrow* appears as a sinuous line, from an eighth of an inch to half an inch in length, generally black from included dirt, but, in cleanly people, white. The burrow is caused by the female acarus pushing its way between the horny layers of the epidermis, and depositing ova in its track. On examination with a lens, there can be seen at one end of the burrow a yellowish opaque spot—only just visible to the naked eye. This is the *acarus*; with the point of a needle it can be readily

removed and examined under the microscope, where it is seen as a somewhat oval translucent scale-covered body, having at the anterior part a central head and four lateral legs with suckers, and towards the posterior part four legs with spines. The male, which does not burrow but lives on the surface, is seldom seen. It has a sucker instead of a spine on the two central hinder legs.

Frequently, towards the end of the burrow at which the acarus is found, but slightly behind this the advancing point, there is a small *tense clear vesicle*. Careful inspection will show that this vesicle is beneath the burrow which is often seen passing over its roof. This pearly vesicle is the only sign of inflammation due to the presence of the acarus itself, and the line of the burrow shows no inflammation. Under certain conditions, as on the penis of adults, or occasionally on other parts in children, the burrow may be set in a red, raised, inflammatory, indurated ridge; but this is the result of secondary coccic infection.

The burrow, with its often accompanying pearly vesicle, is found especially in certain situations, namely, between the fingers, upon the front of the wrist and upon the palms, on the soles and sides of the feet, and in children on the inner sides of the thighs.

The burrow is the pathognomonic lesion, and it is this that must be sought in making a diagnosis; and it must be looked for in the situations mentioned. But frequently, in addition to the burrows and pearly

vesicles, eruptions of an impetiginous nature, and of an eczematous type are added—*impetigo* from infection by scratching, and *eczema-like eruptions* also partly from the irritation of scratching, but not wholly so, since they may occur extensively in babies who cannot scratch. Sometimes there may be large vesicles or even bullæ about the hands and feet, probably also of an impetiginous nature. A widespread pustular dermatitis especially localized to the hands and feet in an infant is almost diagnostic of scabies. But in infants the eruption often takes another form—over the whole trunk and limbs, and even upon the face there is an eruption of dry, or here and there, weeping, scaly patches suggestive of eczema, which is very characteristic.

It is mainly in their distribution that the eruptions of scabies in infants differ from those of adults. The occurrence of eczematous and impetiginous lesions upon the head and face is peculiar to infants. In infants and in older children the feet are more often attacked, and lesions here are often pustular. The generalized eczematous eruption of babies does not occur in adults and older children. In children who are kept clean, as when an epidemic occurs in an institution, the pruritus may be the most prominent symptom, and there may be little or nothing to be seen upon the skin except a few small papules or vesicles about the hands or feet, scratch marks, and perhaps here and there rough eczematoid patches upon the limbs or trunk: it is only upon close inspection

that the burrows are discovered, the difficulty in finding them being greater because they are not blackened by included dirt, but appear as fine, whitish, wavy lines.

DIAGNOSIS. Intense itching, especially severe at night, accompanying a more or less generalized, ill-defined, papular eruption, with or without impetiginous lesions about the hands and feet, always suggests scabies, and search should be made for the burrows and for the acarus. The appearance of the burrow and the method of finding the acarus I have already detailed. The finding of the acarus is essential to the making of a sure diagnosis.

In older children scabies can scarcely be mistaken for any other eruption, though in the presence of a generalized impetigo or eczematous eruption one may, without care, overlook the fact that scabies is the initial malady. The somewhat uncommon eruption of *summer prurigo* may at first be mistaken for scabies unless careful attention be paid to the history and to the fact that it attacks the face.

In infants and in young children it is sometimes not very easy to distinguish scabies from *lichen urticatus*. Both are intensely itchy, at night especially. Both present scratched papules, and in lichen urticatus there are often tiny vesicles about the fingers. The presence or absence of the acarus and the presence or absence of papule-centred wheals are the points upon which the diagnosis rests. The occurrence of scabies in another member of the family is often a help in making the diagnosis.

In very young babies, unless one is familiar with the extensive dry eczematoid eruptions which may sometimes be seen covering trunk, limbs, and face, one is very liable to overlook the presence of scabies in these cases. In babies the acarus may often be found upon the inner margin of the sole, when it cannot be discovered elsewhere, and the mother nearly always suffers from the same complaint.

METHOD OF INFECTION. Children may be infected from other children or from their parents; infants generally from the mother or nurse. Scabies is thus often spread through a family—a point to be borne in mind when making a diagnosis and when treating the disease. Contagion takes place probably only by prolonged contact, as in sleeping in the same bed, or by constantly handling the same objects—as must be the case when it spreads through an institution where the children sleep apart. It is supposed that infection occurs in the following manner:—the ova lying in the burrow are hatched into larvæ which become liberated by the wearing off of the horny roof of the tunnel, or possibly by their own efforts; before and after this process of liberation the larvæ are passing through various stages to become adult males and females, and the female becoming impregnated—often before the adult stage is reached—begins to burrow and deposit eggs behind her. And thus the cycle is completed either upon the same host or upon another.

TREATMENT. The object in the treatment of scabies is to destroy the acarus; the pruritus and the various

eruptions dependent upon its presence will usually subside when this is accomplished. To destroy the female acarus the roofs of the burrows must be broken and a parasiticide afterwards applied. The simplest and most effectual means of doing this is the commonly employed method of hot baths and thorough soaping, followed by the inunction of sulphur ointment. There is no objection to the use of sulphur, even in young babies, if the proportion be low—gr. 10 to gr. 15 of sulphur to \bar{z} i vaseline. The child should have, at bed-time, a warm bath with free use of soap, followed by the application of the ointment to every part of the body. This may be repeated for three or four nights, when, if thoroughly carried out, the cure should be complete. Other ointments may be used in place of sulphur— β . Naphthol gr. 10. ad \bar{z} i, Balsam of Peru \bar{z} i to \bar{z} i. But sulphur is the most effectual application, and does no harm if used in mitigated doses. If used too strong, or if its use be continued for too long a time, the sulphur itself may produce an itching eczematous or papular eruption which may be mistaken for a continuance of the scabies, or lead one to suspect the accuracy of the first diagnosis. On cessation of the use of the sulphur and application of an antipruritic lotion (e. g. lot. carbonis detergens), the itching and eruption rapidly subside.

The treatment of other members of the family, and especially of the mother or nurse of an infected infant, must be attended to.

CHAPTER V

AFFECTIONS DUE TO VEGETABLE PARASITES (FUNGI)

PARASITIC affections of the skin of vegetable origin include *Ringworm*, *Favus*, *Tinea versicolor* and *Erythrasma*. Of these only ringworm, and favus, as being especially diseases of childhood, will be considered here. *Erythrasma* is not met with in children; *tinea versicolor* very rarely indeed, and then with no special features. *Actinomyces*, also a fungus disease, rarely affects the skin and then usually in adult males. The rare disease *Blastomycosis* has, I think, only once been met with in a child.

RINGWORM

Many different clinical types of ringworm have long been recognized and named according to the part of the body affected: for example; *Tinea tonsurans*, or Ringworm of the Scalp; *Tinea circinata*, or Ringworm of the Body; *Tinea barbæ*, or Ringworm of the Beard; *Tinea cruris* or Ringworm of the Groins and Thighs (formerly called *eczema marginatum*); *Tinea unguium*, or Ringworm of the Nails. It has been known for many years that ringworm in all these

different forms is due to the invasion of the hair, the epidermis, or the nails, by a mould fungus, and until recently it was generally supposed that one type of fungus, the *Trichophyton tonsurans* of Malmsten, was responsible for all. Some observers had noticed differences in the appearance of the fungus in hairs from different scalp cases, but this, it was thought, was to be explained by the invasion being recent in some instances and of long standing in others. We now know that these different appearances are due to the presence of different forms of fungus, and that instead of there being only one kind of ringworm fungus there are very many varieties.

In 1891, Furthmann and Neebe cultivated and described several varieties of fungus; but it was not until 1892 that, by the work of Sabouraud, the fact of the plurality of the ringworm fungi was established. Sabouraud described two distinct forms of fungus, a large-spored and a small-spored type, and identified the small-spored type with the *Microsporon Audouini* which had been described by Gruby in 1843, and the large-spored type with the *Trichophyton tonsurans* of Malmsten. Sabouraud has since amplified his first discoveries, and he has shown, by clinical, histological, and cultural evidence, that there are not only two distinct kinds of fungus, the large and the small-spored, but that each of these has many varieties. He has also shown that while certain of these forms are found exclusively in human beings, others are prevalent among animals, from which source human beings

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receive, directly or indirectly, the infection. Sabouraud's work has been confirmed by many other observers all over the world.

Under certain conditions of artificial cultivation each variety of fungus has its own characteristic growth, and the different forms of fungus produce in the hair and scales different microscopical pictures, which correspond broadly to the different types of culture.

The following table indicates the chief varieties that have been met with in this country.

I. THE SMALL-SPORED RINGWORMS OR MICROSPORONS

The spores are small and not in chains but packed together in the form of a sheath upon the outside of the hair. The cultures are white, downy discs.

HUMAN FORM :

Microsporon Audouini, responsible for the common ringworm of the scalp in children ; not found in animals. The fungus chiefly outside the hair in the form of a mosaic of spores. Downy-white cultures on artificial media.

ANIMAL FORMS COMMUNICABLE TO HUMAN BEINGS :

Various microsporon forms found in animals ; found in the colt, the cat, the dog ; and communicable to human beings either as scalp ringworm in children or as body ringworm or as ringworm of the beard.

II. THE LARGE-SPORED RINGWORMS OR TRI- COPHYTONS

The spores are in chains and somewhat larger than the microsporon spores ; they may be wholly inside the hair, or both outside and inside. The cultures are of various colours and have a powdery surface.

HUMAN FORMS :

Endothrix type—fungus wholly within the hair.

(a) *Tricophyton megalosporon endothrix* (crater culture), one form giving rise to characteristic yellow crateriform cultures and responsible for the majority of large-spored ringworms of the scalp, some beard cases, a few nail cases, and many body cases.

(b) *Tricophyton megalosporon endothrix* (acuminate culture). Another form, clinically indistinguishable from the last, but giving rise to yellow acuminate cultures (the centre of the culture raised, not depressed as in the crater culture) and responsible for a certain number of scalp cases.

(c) *Tricophyton megalosporon endothrix* (violet culture), a third form, also clinically indistinguishable, but giving rise to a violet acuminate culture, and responsible for some scalp ringworms and some beard cases.

ANIMAL FORMS COMMUNICABLE TO HUMAN BEINGS :

Endo-ectothrix type—fungus both inside and outside the hair. The outer sheath (unlike that of the microsporon) is in chains of spores or short, jointed mycelium. Most of these forms are of animal origin, but communicable to man. Their lesions are more inflammatory than those of the previous forms.

(a) *Tricophyton megalosporon endo-ectothrix* giving yellow cultures with rayed margins. A horse ringworm communicable to man as body or beard ringworm, seldom as scalp cases. Lesions in scaly rings.

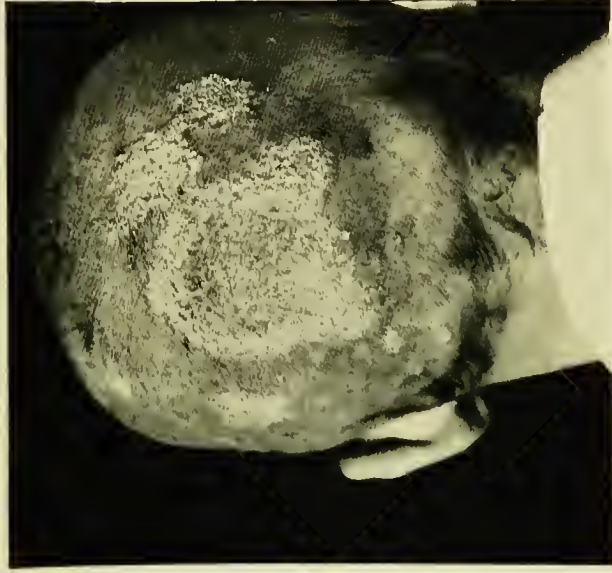
(b) *Tricophyton megalosporon endo-ectothrix* giving white cultures with rayed margins. A cat ringworm communicable to human beings. A common cause of ringworm of the body in children and adults and of beard ringworm. There is a tendency to formation of vesicles in the lesions ('Herpès vésiculeux de Bielt').

(c) *Tricophyton megalosporon endo-ectothrix* giving large, luxuriant, white cultures. A horse ringworm communicable to man. Seen chiefly in ostlers, carmen, and others who work with horses ; has highly inflammatory and suppurating lesions.

(d) *Tricophyton megalosporon endo-ectothrix* giving rose cultures. A bird ringworm. Seen in human beings as beard and body ringworms.

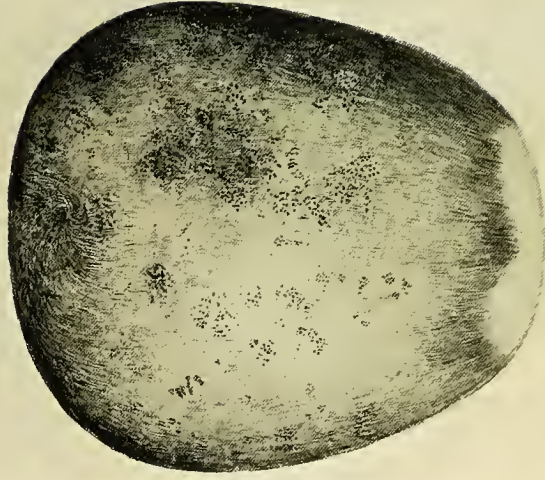
TINEA TONSURANS. RINGWORM OF THE SCALP

Very many of the forms of ringworm given in the above table are of animal origin ; ringworms of the scalp, which most concern us here, are, with rare exceptions, not derived from animals and are confined to two main types which are of human origin, namely, *the small-spored or microsporon ringworms and the large-spored trichophyton endothrix cases*. Before passing to the consideration of these separate forms it will be convenient to recall some general features common to them both. Ringworm of the scalp is a disease due to the invasion of the hair-shaft by a fungus. A child becomes infected from another child already suffering from the disease, either by direct contact in play, by using the same brush, or by putting on the same cap, or in some such way. The disease has nothing to do with dirt, nor necessarily with neglect, and a child in any station of life may become infected by contact with the disease. The fungus does not attack the hair directly, but it first of all begins to grow in the epidermis of the scalp, leading to a small scaly patch, and from this point of vantage it then attacks the hair. The hairs attacked soon become brittle from impaired nutrition or from actual loss of substance and break off at varying distances from the scalp ; and any attempt to pull out the diseased hairs causes them to break within the follicle, leaving there the still infected shaft and the uninjured root to carry on the disease as the hair continues to



SMALL-SPORED RINGWORM

LARGE PARENT PATCH AND SMALLER SATELLITES — SOME
MERGING WITH PARENT PATCH



LARGE-SPORED RINGWORM (ENDOTHRIX)
AFFECTED HAIRS IN SMALL GROUPS IRREGULARLY
SCATTERED OVER SCALP

From drawing kindly lent by Dr. T. Colcott Fox

grow. From this fact arises the obstinacy of the complaint, the facility of its spread—by falling infected stumps—and the difficulties of its treatment. In all forms of ringworm of the scalp the broken stump is the most characteristic and important feature.

Ringworm of the scalp, although a disease which causes no danger to life, nor even—at any rate in any marked degree—to health, yet is of great importance from the social side. By its presence it renders the child affected unfit for school, or even to associate with other children, for months and often for years. Its very great prevalence in our elementary schools is an evil which is, in this country, but just beginning to attract the attention of the educational authorities.

CLINICAL FORMS OF RINGWORM OF THE SCALP

Small-spored and Large-spored Ringworms. The majority of cases of ringworm of the scalp which occur in this country are due to the *Microsporon Audouini*, that is to say, are of the *small-spored type*. This form of the disease is prevalent in the elementary schools throughout London and in large provincial towns, and it is therefore the common type seen in our hospitals. It occurs also largely in epidemics in better class schools or in institutions, and consequently in private practice.

The next most common forms are of the *large-spored endothrix type*. These are seen only occasionally in hospital practice, but they may occur in epidemics in better class schools and in institutions,

so that their percentage is higher in some statistics than in others, and their proportion in general practice is greater than in hospital work.

Small-spored Ringworm of the Scalp

CLINICAL FEATURES. In typical and advanced cases there are numerous and variously sized, well-defined, circular patches scattered over the whole scalp, or there may be one or two large patches with outlying smaller ones. The patches are not bald, but they are thickly covered with stumps of about one-eighth of an inch in length, and among the shorter hairs are generally remaining a few isolated or small groups of long normal hairs. The stumps, when not disturbed by rubbing, all lie in one direction; they are pale and lustreless as compared with the normal hairs, and they have lost their elasticity, as can be demonstrated by rubbing a patch, when the hairs remain bent in opposite directions instead of returning to their original position. On pinching up the stumps between the finger and thumb they can easily be extracted in bundles without pain to the child; generally they break off in the follicle, but occasionally one or two come away with the soft bulb attached. The patch may sometimes be covered with thick, white scales, masking the stumps, which are matted down in the scales and only discovered on scraping up the scales with the forceps. On the other hand, the patch may be almost free from scales, except for a little heaping up round the follicles, which may

thus appear raised from the surface, giving the appearance of 'goose-skin'. The appearance of a patch in its *very earliest stage* is that of a small scaly area of about the size of a threepenny-piece, over which only a very limited number of hairs are broken off. In long-standing cases almost the whole head may be covered with matted, white scales in which are broken stumps, the normal hair remaining, though thinned out, so that the condition is often regarded by the parents as merely a 'scurfy scalp', and ringworm, which they always imagine to be in rings, is not thought of. The smooth skin of the face and neck and shoulders is often the seat of small, reddish, rough patches of ringworm; and sometimes even largish red rings are seen. Sometimes, too, on the scalp in young babies, or in recent infections in older children, the lesions take the form of similar red rings instead of the typical scaly patches; but sooner or later the hairs are attacked and the patches assume the usual appearance.

If left to itself, without treatment or without efficient treatment, the disease will remain for months or for years. Occasionally, after lasting for eighteen months or two years, it may die out, or this may happen in a few cases even in a shorter time; but more usually it continues for many years, sometimes until puberty, when it gets well spontaneously. The disease may remain localized to one or a few patches, or, as is more often the case, it spreads widely over the head. Sometimes, as a result of some strong appli-

eation, patches are impetiginous and scabbed ; this is always a good sign, as the hair eventually comes off, and the patch is cured. There is also a peculiar kind of inflammatory condition which occasionally occurs, called *kerion*. *Kerion* is a condition in which one (or more) of the patches of ringworm becomes swollen above the surface and soft and boggy to the touch, strongly suggesting a subcutaneous abscess, but which, if incised, is found to be solid and exudes only serum. The cause of this inflammatory condition is unknown ; it may occur in either form of ringworm of the scalp, and is not a special form of reaction to a special fungus, as Sabouraud at first supposed. The inflammation leads to fall of the hair, and so to cure of the ringworm. It is thus a favourable symptom ; though, in order to get good results, it must be rightly treated ; otherwise it may last for months, and eventually lead to permanent loss of hair.

MICROSCOPICAL APPEARANCES OF THE DISEASED HAIR. The fungus envelops the hair in the form of a sheath made up of closely packed spores, which, under the microscope, appear as though arranged in a mosaic. For examination the hair is placed upon a slide ; a drop of liquor potassæ is put on to a cover-glass, and the latter gently lowered on to the slide over the hair. At first the spore sheath can only be indefinitely made out ; as the specimen becomes cleared by the potash, the spores become more distinct, and by careful focussing it is seen that the hair itself is denuded of its cuticle and eroded, and upon its

surface and within the shaft delicate threads of mycelium can be made out running in a longitudinal direction. Its extremities are irregularly fractured, and stick out beyond the spore sheath. If by careful traction a hair has been obtained with the soft bulb intact, it is seen that the spore sheath stops short at the neck of the bulb, and there is here, just beyond the margin of the sheath, a terminal fringe of mycelium in the shaft. If the sheath be traced upwards, it is found to stop short just beyond the intra-follicular portion, and the aerial part of the hair shaft is merely eroded, and has in it a few broken mycelial threads (Pl. I).

CULTURES OF SMALL-SPORED RINGWORM. This fungus grows readily upon any artificial culture medium ; though media containing sugar are especially suited to it. Upon malt agar the growth forms a characteristic downy disc, with a central tuft and alternating concentric downy circles. On Sabouraud's proof medium (water 100, agar agar 1.30, peptone .50, maltose 3.80), the culture forms a uniformly white downy disc with a central raised downy knob.

Large-spored ringworms of the scalp

The large-spored ringworms of this country are of the endothrix variety, and they form a comparatively small proportion only of the whole number of scalp cases. Sabouraud described several forms of large-spored endothrix ringworms of the scalp. These forms are difficult or impossible to distinguish from each

other clinically or microscopically: but, by cultures, it has been found that the endothrixes met with in this country are of two types; one giving a yellow crateriform culture, and one a violet acuminate culture.

CLINICAL FEATURES. The clinical appearances vary according to the stage of the disease, and according as the case has or has not been under treatment. The patches, which are small and scattered over the head, often comprise a few diseased stumps only, so that without careful inspection they are easily overlooked. This is in contrast to the large patches of the small-spored type with an abundant stubble of broken hairs. Sometimes, especially in girls with long hair, the stumps are from half an inch to several inches long, white, lustreless, and arising from a small scaly patch; their unusual length being due to the fact that they are protected and supported by the normal long hairs. When the case has been under treatment, or in boys with short hair, the stumps are broken shorter, and may even be broken so short that they form merely 'black dots' in the follicles; such 'black dots' may consist of curled-up stumps which have broken short, and have, on their beginning to grow again, been held down by the overlying epithelium under which they curl up.

Occasionally larger areas are seen, semi-bald and covered with very short stumps. These occur especially at the margins of the scalp, where a ringworm of the glabrous skin has spread directly from the face

or neck on to the scalp. This type is not quite so readily distinguished from the small-spored form.

The large-spored endothrix ringworm is, as a rule, of even longer duration than the small-spored form. Cases may last for many years, and it does not always die out at puberty as does the small-spored ringworm. Until the introduction of the X-ray treatment its management was very difficult, and many cases were only eventually cured by 'needling' each stump, or painting of small areas with croton oil.

MICROSCOPICAL APPEARANCES OF THE HAIRS.

Unlike the microsporon hair, the endothrix hair retains its cuticle, and instead of a sheath of spores outside, it presents, within the cuticle, and more or less occupying the whole interior of the hair, long chains of square segments or of rounded spores somewhat larger in size than the spores of the microsporon sheath. On tracing these elements downwards towards the root of the hair, in those specimens in which the root remains intact the chains are seen to stop short at the neck of the soft bulb in the form of a fringe of mycelium, exactly as in the microsporon hairs. In hairs only recently attacked, it is often possible to find a few chains and filaments outside the hair, but in fully involved hairs, the strings of spores entirely within the hair are quite the characteristic picture (Pl. I).

CULTURES OF LARGE-SPORED ENDOTHRIX RINGWORM. Two types of culture are found among the endothrix scalp ringworms of this country. Upon 'proof medium' the cultures formed are (1) the *yellow*

compact disc-like growths with powdery surface and *crateriform* depression at their centre ; (2) the *violet* coloured cultures, acuminate, and with a moist rather than powdery surface. The most common of these is the crateriform culture. Each of these cultures represents a distinct fungus, and 'grows true'. It is not possible to distinguish these two forms clinically.

DIAGNOSIS OF RINGWORM OF THE SCALP. The key to the diagnosis of the presence of ringworm of the scalp, and, it may be added, an important factor in its successful treatment, is the ability to recognize the diseased hair stump. Well-marked cases of the ordinary small-spored type are easily recognized by the patches covered with stubbly hairs, but any case which presents scaly patches of the scalp, or bald or partially bald areas, should be carefully scrutinized for 'ringworm stumps'. For this purpose a lens, preferably a watchmaker's lens, which can be held in the eye and leave the hands free, and a pair of forceps are necessary. The long hair is then carefully held aside with the forceps, and, if necessary, any scales scraped away, and any stump which presents itself is pulled gently with the forceps. If this appears lustreless and non-elastic, and breaks off short in the follicle, it is probably a ringworm stump. It may be examined under the microscope in a drop of liq. potassæ in order to check the diagnosis. It may be said, however, that the microscope does not give much help unless one can recognize the diseased hairs by the naked eye, since one does not know which hair to examine.

Even without the microscope ringworm hairs are readily diagnosed from alopecia hairs by their dull or whitish appearance, and by the soft manner in which they fracture. Alopecia hairs retain their normal lustre and elasticity, are thicker at the free end than near the base, and when pulled at with forceps they come away with a characteristic click, due to the sudden separation of the atrophied root from the atrophied follicle (Fig. 5, p. 276).

The finding of a single stump is sufficient to establish the diagnosis of ringworm. But the diagnosis of its presence is not enough, and the extent of the disease must be found out. The whole head must be carefully examined for patches and isolated stumps or small groups in order to know exactly how much one has to treat.

The diagnosis of the kind of ringworm, though of scientific interest, is clinically not so important. By experience one can generally suspect at the first glance that a case is either small-spored or large-spored endothrix—the large areas covered with equal lengthed friable stumps of microsporon, and the smaller areas either with black dots, short thick stumps, or long opaque brittle hairs of endothrix. The microscope will decide at once.

TREATMENT OF RINGWORM OF THE SCALP.
Ringworm of the scalp cannot be cured by the mere application of parasiticides. Experience and direct experiment have shown that no outward application can be made to penetrate sufficiently deeply into the

follicle to destroy the fungus. Any attempt to extract the diseased hairs breaks them off in the follicle, leaving the fungus there ready to invade the hair as it continues to grow upwards from the root. Hitherto, our aim has been to cause an inflammation around or at the hair papilla which will lead to separation of the hair bulb, and thus to fall of the hair. Most of the applications in general use have this result to a greater or less degree. Ointments of oleate of copper, of oleate of mercury, compound citron ointment, crude izal, and many other such applications probably act, when they do so at all, by their irritating properties. If their use be persevered with they will sometimes appear to cure the ringworm after many months of steady application, although, in perhaps the majority of cases, the disease may go on for from twelve to eighteen months, or even longer, in spite of the treatment. For limited patches stronger applications are used, such as croton oil, glacial acetic acid, and formalin. These are often effective, but without much care they are very liable to leave scars.

There is, however, one application of the irritant type, of which, from long experience, I can speak favourably. This is an ointment composed of equal parts of sodium chloride and vaseline. A daily rubbing in of this ointment will, in a large percentage of cases, cure the ringworm within three or four months. It does so by producing a dermatitis, which curiously enough remains localized to the ringworm patches, and which is followed by fall of the diseased

hair stumps and the production of bald areas upon which healthy hair eventually grows again. Certain precautions are needed in its use, otherwise a pustular impetigo may result, spreading widely over the head and neck leading to boils and to enlarged glands in the neck. Daily fomentations with hot water will prevent this pustulation; and the method I adopt in the treatment is as follows:—the hair all over the head is cut short; the ointment is well rubbed in over the whole head (or locally if only a small area be affected) every morning; every evening the scalp is well fomented with hot water. By this method only the patches remain sore—they become red, swollen, and oozing, but no pus is formed. The drawback to the method is that it is extremely painful, and although many children will stand it quite well, in others it has to be given up. It is not always successful—the patches sometimes refuse to become sore—but probably in a third of the cases so treated it effects a comparatively rapid cure.

TREATMENT OF RINGWORM BY THE X-RAYS.

For many reasons the method of treatment of ringworm of the scalp by means of the X-rays is the most satisfactory; it is comparatively rapid, and it is painless. Its only drawbacks are that it requires special apparatus, and that the actual application of the rays occupies a good deal of time. With the present method of accurate dosage there is no risk of injury to the patient or of permanent baldness as a result of the application, provided proper precautions be taken.

The essential feature of the method is that depilation is produced within a few weeks, and that the fungus is removed with the hair in or upon which it grows. In fact, the depilating action of the X-rays has supplied the long felt want of some method of getting rid of the fungus by temporary removal of its host—the hair.

Ever since it was first known that the X-rays would cause fall of hair attempts have been made to employ the rays for this purpose in the treatment of ring-worm; but until a few years ago there was no safe method of measuring the dose, so that the application was attended with serious risks of permanent baldness, or even of ulceration and scarring. The introduction of the now well-known pastille of Sabouraud and Noiré has changed all this, and the method has now become workable and safe.

The pastilles of Sabouraud and Noiré are small discs composed of an emulsion of platino-cyanide of barium in collodion and acetate of starch spread upon Bristol board. The X-rays have the property of changing the colour of the platino-cyanide of barium from a bright green to an orange colour. A standard tint (called the B tint) has been fixed, and it is only necessary to place the pastille midway between the source of the rays and the scalp and to continue the exposure until this tint is reached in order to give, at a single application, the amount of rays necessary to produce depilation over the area exposed.¹

¹ The pastille of Sabouraud is a perfectly reliable and safe means of

SABOURAUD'S METHOD. Sabouraud encloses the tube in a metal case lined with ebonite and with an opening on one side which can be fitted with metal cylinders of various diameters but of uniform length. The area of the scalp to be treated rests in front of the open end of the cylinder which is of such a length that the scalp is fixed at 15 cm. from anticathode. Midway between the scalp and the centre of the tube, in a special opening in the metal case, is placed a platino-cyanide of barium pastille; and the current is passed through the tube until the colour of the pastille matches the standard tint. If the patches of ringworm are few in number they are exposed separately. If many and scattered, the whole scalp is exposed in circular areas of not more than 8 cm., each area as it is exposed being covered by a protecting disc of sheet lead so as to prevent double exposure from the overlapping of

dosage provided it is properly used. Pastilles should be obtained direct from the original maker, Drault of Paris.—I have seen books of pastilles, sold in this country, in which the standard tint has been much too dark, so that exposure to that tint would certainly result in dermatitis and permanent baldness. But so long as the correct standard tint is not surpassed, and the pastille and scalp are fixed at their proper respective distances, there is no danger whatever of dermatitis or non-regrowth of hair. An under-dose, a matter of annoyance, but of no seriousness, may be given by using again old pastilles which have not completely returned to their original tint, or by making a comparison with the standard tint in a bad light—for the exposed pastille appears darker in a bad light: in either case the standard tint is reached before the full exposure has been given.

the circles, which is necessary in order to avoid leaving untreated angular bits.

Within the third week after exposure, generally beginning about the fourteenth or fifteenth day, the hair falls—both sound and diseased hair—so that the area exposed is soon quite bald.

Method employed by the writer. In my own practice I use, instead of the shield and localizing cylinders of Sabouraud, the box shield suggested by Dr. Sale-Barker: this consists of a wooden box lined with rubber composition impermeable to the rays, and having at one side a circular aperture. The box encloses the tube entirely, the latter being fixed in such a position that when at work the rays are directed through the aperture. On the outside of the box, around the aperture, are three wooden pegs against which the scalp rests during exposure. The pegs are of such a length that the area of the scalp which rests against them is maintained at a distance of $6\frac{1}{2}$ inches from the anticathode of the tube. I prefer to have the pegs made adjustable, so that on the exposure of a sharply convex area which projects inwards between the pegs they may be screwed out a little until the nearest point exposed is not less than $6\frac{1}{2}$ inches from the source of the rays. At one side of the aperture is arranged a small pastille holder by which the pastille is fixed at a distance of $3\frac{1}{4}$ inches from the anticathode.

The scalp is first of all carefully examined in order to determine the extent of the disease. If, as is very

often the case, the disease is extensive, it is better not to try to pick out the diseased areas, but to ray the whole scalp. If, however, there are only one or two, or perhaps three, isolated patches, these, and a surrounding healthy area, may alone be exposed. Except in those cases where the disease is obviously limited to circumscribed areas, it is generally better to ray the whole head in order to avoid leaving isolated stumps or small patches which require to be treated subsequently.

The hair over the whole head is first of all cut short with clippers, so that the areas to be rayed may be carefully marked out. The scalp is then divided by blue pencil lines into eight areas, namely, two squares on the vertex, two squares on the occiput, and two irregular areas on each side. Each of these areas is then, in turn, accurately surrounded by a thin lead foil shield, which is held in position by a bandage.

The area is then placed against the pegs, and exposed to the rays until the pastille has reached the standard tint. The time of exposure will vary with the quality of the rays and the strength of the current. With my own installation it occupies about twenty minutes, using a tube with an alternate spark length of 4" and passing through it a current of $\frac{4}{5}$ milliamps. Each marked-out area is similarly exposed in turn. The exposures may be made continuously upon the same day, or upon consecutive days if care be taken to preserve the marginal lines.

The patient need not be seen again until the middle

or the end of the third week after exposure. If the correct dose has been given it will then be found that the hair, both normal and diseased, is falling rapidly, and that it can easily be extracted by the fingers. The fall generally begins upon the fourteenth day after exposure, though it may be delayed for several days or even a week. As soon as the hair begins to get loose, the scalp must be washed daily, with pretty vigorous friction, in order to remove the loose stumps, and soon the exposed areas will be entirely bald—or the whole scalp if the whole head has been exposed.

At the end of six weeks or two months from this time fine downy hair begins to appear, and in a few weeks more it has grown to about an inch in length and has regained its natural colour. It continues to grow until it is quite of its former length, strength, and colour. By the removal of all the fungus with the falling stumps the scalp has become free from disease, and the long interval between the fall and the regrowth has given plenty of time for its complete disappearance.

RINGWORM OF THE BODY

Lesions upon the face, trunk, or limbs, due to the ringworm fungus, are common in children, either in association with ringworm of the scalp, or independently. They occur in the form of small, red, scaly patches, or red, scaly rings, or sometimes as a ring of minute papules or vesicles. The lesions may be single,

or multiple and covering a large area. Occasionally one or more rings are seen within another, or overlapping one another. Cases may be divided into (1) those occurring in association with scalp ringworm, (2) those occurring apart from scalp ringworm.

With the common form of microsporon of the scalp there are sometimes finger-nail sized, red, scaly discs upon the face and neck ; occasionally ringed lesions are seen. Exceptionally, the ringed lesions may be numerous and widely distributed, and in that case one generally finds, if a culture be made, that the ringworm is a microsporon of animal type, known by more luxuriant and fluffy growth upon artificial media.

The endothrix scalp cases are perhaps more often accompanied by body lesions, and these are generally of the ringed type.

When lesions occur without scalp affection they may be microsporon or endothrix ringworms caught from the scalp of another child. But very often these isolated cases are large-spored ectothrix of animal origin, and frequently the cat ringworm of white plastery cultures. Occasionally one is able to secure the affected cat, and on it are found bald and scaly patches, the hairs and scales of which show fungus under the microscope and in culture. Sometimes a child is infected with body ringworm from ringworm of the beard in the father. The highly inflammatory lesions produced by horse ringworm, and seen often in ostlers and carmen, are not met with in children.

*Table of forms of ringworm of the body met with
in children*

IN ASSOCIATION WITH SCALP RINGWORM :—

With *Microsporon Audouini* or with animal microsporons—scaly discs or rings.

With *Endothrix Tricophyton*—scaly rings.

NOT ASSOCIATED WITH SCALP RINGWORM :—

Either of two previous types of human origin.

Animal microsporons—cat, dog, colt—scaly rings.

Endo-ectothrix tricophytos—cat chiefly—vesicular lesions.

DIAGNOSIS. Almost any circumscribed patchy or ringed eruption may be mistaken for ringworm of the glabrous surfaces. In ringworm, except in the small finger-nail sized patches associated often with the microsporon of the scalp, the lesions are usually markedly ringlike, and the ringed margin is sharply defined and scaly, or in some cases minutely vesicular. The lesions, though they may be numerous, are generally single or few in number, and irregularly and asymmetrically distributed. A scraping examined in liq. potassæ under the microscope enables one to arrive at a correct diagnosis. It must be remembered, however, that a little difficulty may be sometimes experienced in finding fungus: it is generally necessary to wait for some ten minutes or more until the scales are well cleared before the fungus becomes visible. It is seen in the microsporon forms as a network of mycelial threads branching at right angles: in the tricophyton forms as long dichotomously branching threads of mycelium, and in chains of mycelial

spores with double contour. The glabrous hairs may be attacked and then present the respective pictures found in the different varieties of scalp ringworm.

TREATMENT. The treatment of *tinea circinata* is simple. The patches may be painted with tincture of iodine, or rubbed with a strong ointment, such as sulphur ointment with the addition of m x of acid carbolie to the ounce. The object is to scale off the epidermis in which the fungus is growing. Mere parasiticides, which do not produce this scaling, are not so efficacious.

RINGWORM OF THE NAILS

Ringworm of the nails is comparatively rare. It is never associated with the common small-spored type of ringworm of the scalp. It occasionally occurs with the less common large-spored ringworms of the scalp, especially perhaps with that of violet culture; or it may be due to a ringworm of animal origin—one of the endo-ectothrix types.

The affection may attack one or all of the fingernails. The toe-nails are rarely involved. It is a very chronic malady, and may last for years. The disease usually begins at the free margin of the nail, undermining it for a certain distance with a thick scaly pad, while the part of the nail covering it becomes opaque and brittle. Often only a portion of each nail is thus involved. Sometimes the disease spreads backwards until the whole nail-bed is involved, and even the nail itself, which then becomes thickened, rough,

opaque, and friable. Occasionally the disease begins at the root of the nail and spreads towards the free end.

DIAGNOSIS. The diagnosis from other affections involving the nails, such as eczema, psoriasis, and chronic coccic infection is often impossible without microscopical examination. It is only when these latter nail affections are associated with lesions of the same disease upon other parts that they can be diagnosed with any certainty. If the disease is ringworm, filings of the nail, examined in liq. potassæ under the microscope will generally show the fungus.

TREATMENT. The application of the X-rays is not available here as in ringworm of the scalp, since the rays do not actually destroy the fungus. We are obliged to rely upon local parasitocides, and the treatment is long and tedious. A favourite method is that of employing continuous dressings of wool soaked in solution of iodine (5 per cent. in water with 1 per cent. potassium iodide), and covered with an india-rubber finger-stall. This treatment must be continued for several months.

FAVUS

Favus is an affection due, like ringworm, to a mould fungus—of a different type, though probably nearly allied. In this country it is a rare disease, and is scarcely seen in London except among Polish Jews and Russians in the East End; it is very rife in Russia and in Poland, and cases seen in London are mostly imported or contracted directly from imported cases.

It is more common in Scotland than in England. Contagion takes place usually from case to case: animals (mice, dogs, cats, birds) suffer from favus, but direct contagion from animals is probably very rare; it has been shown that animal favus is due to a fungus distinct from that of human favus. The contagiousness of favus is less marked than that of ringworm; it is essentially a disease of sordidity, and the fungus requires to remain in position for some time before it gets a hold.

Favus may affect the hairy scalp, the glabrous skin, and the nails, and, exceptionally, mucous membranes. Its characteristic lesion is the *scutulum* or favus cup. This consists of an opaque, sulphur, yellow-pinhead-sized to pea-sized disc with a cupped or depressed centre. It may be seen upon the scalp centred by a hair, or upon the glabrous skin. It is composed almost entirely of spores and mycelial elements of the favus fungus, the *Achorion Schonleini*, and it corresponds to the spore-sheath of the ectothrix trichophytons and of the microsporons. On raising a favus cup with the forceps a moist red and sometimes bleeding cavity is found. This cavity, however, is not so formidable as it looks, and soon heals over. It is only by the finding of this sulphur-yellow scutulum that an absolute diagnosis can be made without the aid of the microscope, or of cultural methods, in an *early* case of favus. In typical cases, which are comparatively seldom seen, the scutulum is well marked, and there may be a number of them packed together to form

a single lesion. More often as the disease advances the character of the scutulum becomes obscured by scaling or by impetiginous crusts. In some cases, even from the first, the scaling or crusting is more in evidence than the scutula, which are ill-formed or abortive and minute and easily overlooked. In more *advanced cases* bald, hairless, *scarred* areas are also seen. These are the result of the chronic inflammation, set up partly by the presence of the favus cups in the epidermis, and partly due possibly to secondary microbic infection of the damaged tissues.

The *hairs* affected by favus do not, as in ringworm, break off to form short stumps, but they become dull and lustreless and loosened in their follicles, and eventually they fall out. Where favus cups are present these are centred by a hair, but there are always many hairs affected which have no favus cup surrounding them. The course of the disease is chronic, and unless efficiently treated it may advance steadily until every hair has been rooted up and the whole scalp transformed into a white scarred area.

On the body favus may occur extensively in association with the scalp affection. Occasionally it is seen as isolated lesions upon the body or limbs, of recent development, and altogether unassociated with favus of the scalp. If, as is often the case, scutula are present upon these lesions there is no difficulty in recognizing them. But if scutula are absent the lesions may be merely erythematous or vesicular rings or patches which are indistinguishable from ringworm.

Favus of the nails is of very rare occurrence in this country. The lesions resemble those of ringworm of the nails. The diagnosis is made by the presence of favus on the scalp or body and by microscopical and cultural examination of scrapings.

EXAMINATION OF HAIRS. Under the microscope the hair attacked by favus presents a picture analogous to that of a ringworm hair. The shaft is filled with long threads of mycelium, terminating at the neck of the soft bulb as a fringe; if the root sheath remains, fungus is seen also as a sheath outside the hair. The mycelium is in very long joints, and it often has a wavy appearance, while the fungus outside the hair is in the form of irregularly shaped and sized spores or mycelial joints—some round, some oval, some kidney-shaped—quite unlike the regular spherical or cuboidal shapes of the ringworm elements.

CULTURES. The cultures of favus on artificial media are characterized by a crackled or vermicular ridging of the surface, which distinguishes them from the cultures of ringworm. Several varieties of favus fungus have been cultivated.

TREATMENT. The successful treatment of favus of the scalp, as of ringworm, necessitates the epilation of the affected hairs. In favus the hairs can be epilated mechanically without fracture, and until recently this has been the only sure method of treatment. The treatment is tedious and slow, and must be done thoroughly and methodically to ensure success. The treatment is begun by (1) removal of all crusts and

favus cups. This is readily accomplished by application of dressings of wet boric lint beneath guttapercha tissue, or of lint soaked in a lotion of chlorinated soda (liq. sodæ chlorinatæ B.P. 1-4). (2) As soon as the scalp is freed from scales and crusts epilation is commenced. Every hair situated upon a reddened surface should be carefully epilated—this may occupy several hours a day for a week. After the areas are made completely bald, week by week, for several months, they must be carefully examined, so that any hairs which having broken in the follicles and now make their reappearance may be extracted. (3) After three months' treatment the hair is allowed to grow for a time under supervision, so that any diseased hairs may be discovered and removed.

If X-rays are available favus may be cured in the same manner as ringworm.

CHAPTER VI

ERUPTIONS DUE TO LOCAL MICROBIC INFECTION

A NUMBER of eruptions are now known to be due to the local action of micro-organisms, and clinical evidence points to a like origin of many others, although the specific microbes of these affections have not yet been discovered.

It is well known that various organisms may be found by cultural methods upon the normal healthy skin. Most of these are non-pathogenic; but pathogenic organisms may also be found. Many of the former are got especially from parts such as the axillæ and between the toes, where the secretions are liable to accumulate. Being non-pathogenic they may grow here without producing lesions. When pathogenic organisms are present upon the *normal* skin they are there only accidentally and as isolated individuals, so that although they may be obtained in culture, yet they are not found in microscopical sections or in scrapings. It is only when, owing to a particular virulence of the organism, a lowered resistance of the tissues, an abrasion of the protecting epithelium, or some other condition favouring its invasion, that the

microbe multiplies into colonies, and by its presence produces a reaction of the skin of an inflammatory nature, clinically evident as what we call 'lesions'. Conversely, when, in an epidermic or dermic lesion, a pathogenic micro-organism is found in a state of active growth, we may conclude that it is responsible, if not for the lesion wholly, at any rate for some part of the inflammatory reaction. To a certain extent it is found that the presence of a particular micro-organism in a state of active growth is associated with a particular type of inflammatory reaction. Thus, the *staphylococcus pyogenes aureus* with follicular pustulation. The *streptococcus* of Fehleisen with superficial phlyctenular lesions, or with more deeply seated serous inflammation. The *tubercle bacillus* with the type of inflammation known as granuloma. The *bottle-bacillus* with multiplication of horny cells to form branny scales. The *micro-bacillus of acne* with oily seborrhœa and with multiplication of the horny cells at the mouth of a follicle to form a plug or comedo. Again, a *staphylococcus* which is found in cultures from almost any skin, and which, from its wide prevalence, has been named *staphylococcus epidermidis albus*, and which has been by some regarded as a modified form of *staphylococcus pyogenes*, ready to become pathogenic under favourable conditions, has recently been claimed by Sabouraud, after much careful research, as the micro-organism responsible for many, at any rate, of the eruptions which constitute the large and important clinical group known as

eczema seborrhoicum. Histologically the lesions are characterized by the formation of crusts made up of epidermic scales with alveoli containing coagulated serum, and these lesions are associated with the presence of *staphylococcus epidermidis albus* in muri-form colonies.

It seems possible too, that the common wart and molluscum contagiosum represent special forms of reaction to special organisms.

Of the micro-organisms which are credited with the production of skin eruptions the following are the more common :—

The *bottle bacillus* or ‘spores of Malassez’ which is found in large numbers in the scales of dry pityriasis capitis, and for which affection it is probably responsible. The bottle bacillus is also found in abundance in the follicular plugs of ‘grouped comedones of infants and children’, and in the upper part of the comedo of acne vulgaris.

The *micro-bacillus of acne*; found in the comedones of acne, and in the mouths of the follicles in oily seborrhœa; regarded by Gilchrist, Unna, and Sabouraud as the cause of acne, and by Sabouraud as the cause also of oily seborrhœa. [This organism is not found on the skin until puberty.]

The *staphylococcus epidermidis albus* or the *morococcus* of Unna; constantly found in cultures made from skin lesions, and indeed from normal skin. Although this micro-organism has been much studied, the rôle that it plays in the production of skin erup-

tions has not yet been fully worked out. From careful recent work by Sabouraud, it seems probable that it is responsible for the large and important group of affections hitherto included under the term *eczema seborrhoicum*.

Staphylococcus pyogenes albus and *aureus*; pus-producing organisms responsible for all forms of follicular pustulation.—Impetigo of Bockhart, boils, &c.

Streptococcus pyogenes of Fehleisen; responsible for a large group of affections, characterized by superficial phlyctenular lesions.—Impetigo contagiosa of Tilbury Fox and its varieties.

Bacillus pyocyaneus; often found in lesions of dermatitis gangrenosa, and in other gangrenous lesions, and by many held responsible for such lesions.

Bacillus coli communis; found in certain eruptions which occur about the thighs and buttocks—‘Vaccini-form dermatitis’, but questionably the cause of these eruptions.

To these may be added the *strepto-bacillus* of Ducrey, held responsible for *ulcus molle*, but with which we are not here concerned; and the micro-organisms of tuberculosis and of syphilis, which will be considered apart.

ERUPTIONS DUE TO THE LOCAL ACTION OF ‘PUS-ORGANISMS’

The impetigos and related eruptions. Eruptions due to the invasion of the skin by ‘pus-cocci’ are very common among children of the poor, and they

form a very large proportion of the skin diseases of children attending the skin department of a hospital, or in dispensary practice. Until comparatively recently the *staphylococcus pyogenes* was held responsible for all the so-called 'pus-infection' eruptions of the skin, such as impetigo, ecthyma, and furunculosis. Recent investigations, however, have shown that the streptococcus takes a very large share in the production of these eruptions. It will be useful to briefly trace the history of our present knowledge of these affections.

Some forty years ago (1862), the common affection now known as impetigo contagiosa, was first clearly isolated and described by Tilbury Fox, and, by him, recognized as an entity and distinguished from eczema, with which it had hitherto been confused. Twenty-five years later (1887), Bockhart described another special form of 'pus-infection' of the skin, which had its origin at the hair follicles, and which led to folliculitis and boils, and which was due, as he found, to the presence of the *staphylococcus pyogenes*. In spite of the clear descriptions of Tilbury Fox, and of Bockhart, clinicians did not draw any sharp distinction between these eruptions, which were regarded as one, and due to the same organism—the *staphylococcus pyogenes*. Unna, however, in 1889, declared that of Bockhart due to the staphylococcus, and that of Fox to a special form of coccus occurring in short chains. Then came a series of observers who recognized the presence of streptococcus in the lesions of impetigo contagiosa of Tilbury Fox—Leroux in 1892,

and Kurth in 1893; and in 1896, Brocker confirmed their results, and identified the organism with the streptococcus of Fehleisen. In 1897, Balzer and Griffin, by a special technique, obtained streptococcus in each of thirty-one cases of impetigo examined, and in fourteen cases of ecthyma. Meanwhile, other observers continued to find only *staphylococcus* in the lesions, and so opinions differed as to which was really the responsible organism. Then in 1901 Sabouraud maintained that there were two distinct forms of impetigo due, the one, to the *streptococcus* of Fehleisen, the other, to the *staphylococcus pyogenes aureus*. The first of these was Tilbury Fox's impetigo contagiosa, the other, Bockhart's follicular impetigo. He pointed out that confusion had arisen from the fact that the lesion of phlyctenular impetigo (impetigo contagiosa of Tilbury Fox), due in the first instance to the streptococcus, becomes early infected by the staphylococcus, and that, unless special precautions are taken in making cultures, the streptococcus is at once overgrown by the more luxuriant staphylococcus. Formerly, cultures had been made on solid media, which were favourable to the staphylococcus, but not to the streptococcus; in order to demonstrate the presence of the streptococcus in the lesions, a fluid medium must be used, and the culture made in a capillary pipette, so as to secure practically anærobic conditions; and when this was done there was no difficulty in obtaining streptococcus from the lesions. On the other hand, Sabouraud showed that

the impetigo described by Bockhart was a distinct affection, in which the lesions were primarily follicular pustules, and not vesicles or phlyctenules as in the impetigo contagiosa of Tilbury Fox, and that these follicular pustular lesions were due to the sole presence of the *staphylococcus aureus*, while the streptococcus was never found in them.

The mere finding of streptococcus in the lesions of phlyctenular impetigo by means of this special technique is, of course, no proof that they are primarily responsible for this form of impetigo; but Sabouraud has demonstrated by means of sections of lesions, the relationship of each organism to a particular type of lesion, and he has clearly shown that the streptococcus produces a superficial phlyctenule, while the staphylococcus produces a follicular pustule. Sabouraud's work has, to a large extent, been confirmed by other observers, both clinically and bacteriologically, and his division into a streptococcic and a staphylococcic form of impetigo is now almost generally accepted.

IMPETIGO CONTAGIOSA OF TILBURY FOX ;
known also as **STREPTOCOCCIC IMPETIGO**
or **PHLYCTENULAR IMPETIGO**

Impetigo contagiosa may occur at all ages, and in all classes, but it is commonest among the children of the poor, and in hospital practice it, and its varieties or modifications, probably outnumber all the other

skin eruptions of children attending a hospital outpatient department.

The classical form of the eruption. In its most typical form the eruption is seen as yellowish crusts, of the size of a split-pea to that of a shilling or larger, situated on the face, and especially on the parts around the mouth and nose. The crusts have the appearance of being loosely stuck on, and they are easily removed with forceps, showing beneath either a red and moist, or a dry and glazed surface, according as the lesion is active or fading. The lesions, although from their number and extent they may often present a formidable appearance, are so superficial that they leave no scar behind; they are, in fact, superficial vesicles or phlyctenules, the fluid contents of which have coagulated. The primary vesicle or phlyctenule contains clear fluid, but it rapidly dries up into the characteristic amber crust, so that it is generally only on close inspection that it is possible to find one or more small isolated clear vesicles, representing the earliest stage of the lesion.

The eruption is extremely auto-inoculable and contagious, so that it may rapidly spread over the face and scalp; and often several children in one family are infected.

Sometimes the eruption first appears at the lower part of the occiput, instead of upon the face, and it is then always secondary to *pediculosis*, and probably due to inoculation from scratching.

The glands draining the area affected may become

PLATE IV



BULLOUS IMPETIGO



IMPETIGO CONTAGIOSA

enlarged, notably the gland just beneath the chin, which may become red and inflamed, and even suppurate; and the glands in the back of the neck and occiput when the scalp is affected.

Lesions often occur also upon the limbs and trunk. They may resemble the lesions just described as occurring upon the face, or they may have the character of one of the modified forms—they may be intertriginous, bullous, ecthymatous, or circinate.

Intertriginous Impetigo. When occurring behind the ears, or in the flexures of the joints, the lesions of impetigo contagiosa commonly lead to the condition known as *intertrigo*; by the removal of the roof of the phlyctenule, and by the absence of accumulation of crusts owing to the contact or friction of opposing surfaces, raw, red, moist, discharging areas are produced. Careful observation of these intertrigo areas reveals the remains of the phlyctenule at their margin. Sometimes these surfaces become covered by a sort of diphtheroid membrane.

Bullous Impetigo. Under certain conditions, differences of anatomical structure of the parts affected, or of the character of the soil, perhaps of virulence of the micro-organisms, or under more favourable conditions of temperature due to climate or clothing, the lesions may enlarge rapidly into bullæ, instead of crusting as quickly as they develop. Even in ordinary cases of impetigo bullæ may occasionally be seen upon the palms or soles where the epidermis is thickened, and it is very common to meet with

a *phlyctenular whitlow* on the end of the finger and around the nail. More generalized forms of bullous impetigo are mostly seen in young infants—as in the so-called *pemphigus neonatorum* which I shall describe more fully presently—or in older children in very hot weather or in tropical countries.

Ecthyma. Sometimes, and especially in children who are poorly nourished or otherwise in ill health, the lesions of impetigo contagiosa take on a more serious character. Beginning as isolated vesicles they rapidly dry up into thick, opaque and dirty-looking crusts, unlike the clear amber crust of the typical impetigo lesion; at the same time they spread at the margin in a narrow phlyctenular ring or ‘collarette’; while the whole lesion is surrounded by an angry red halo. The inflammation is more severe, and the severity of the inflammation leads, not merely to the lifting of the superficial epidermis by exudation as in the ordinary lesions, but to its actual destruction; this destruction of the epidermis takes place beneath the crust, forming, if the crust be removed, a shallow ulceration. Such lesions are found more often upon the lower limbs and on the trunk than upon the face; and they are the more liable to ulcerate when occurring upon the legs. This condition, although long regarded as a distinct affection, is now recognized as a modification of the lesions of impetigo contagiosa; and it has been demonstrated that it also is of streptococcic origin.

After a time the lesions of ecthyma may become

infiltrated, and even after treatment has removed the crusts and healed the ulcers, the infiltration may remain as dull-red, flattish nodules for a considerable while.

Impetigo circinata. Exceptionally the lesions of impetigo form circinate patches ; they enlarge rapidly without much fluid exudation, so as to form circinate areas with a narrow advancing margin and a central healed-over portion. The margin may be merely a band of epidermis detached except at its outer edge, or it may have a little turbid exudation beneath it. These lesions spread very rapidly, and may sometimes cover a large part of the body. This type of eruption is uncommon.

Small papulo-vesicular eruption associated with impetigo. In addition to these forms of eruption there is a minor one of common occurrence, though not usually described. Often, when an impetigo of the head and scalp is extensive there are seen extending over the neck and shoulders minute closely-set pin-head-sized papules and papulo-vesicles ; and I have seen a similar condition spread almost over the whole body in association with an extensive impetigo. They are readily removed by mild parasiticides.

DIAGNOSIS OF IMPETIGO CONTAGIOSA. In spite of the multiform aspect of the eruption of impetigo contagiosa—the classical amber-crusts lesions, intertriginous, bullous, and circinate lesions, and cethyma—it is not difficult to recognize if one bears in mind its essentially vesicular character, its tendency

to form superficial crusts, and its extremely infectious nature. Even in scabbed and excoriated lesions the margins usually show some remains of the phlyctenule. I shall refer to the diagnosis of the commoner type of impetigo contagiosa from eczema when dealing with the latter affection, that of bullous impetigo from pemphigus when discussing the diagnosis of pemphigus.

The diagnosis of ecthyma presents no difficulties in the active stage, but the infiltrated dusky-red nodules which are sometimes left after crusted excoriations or ulcers are healed may be puzzling unless one is familiar with their occurrence.

TREATMENT. The treatment of impetigo is very simple, and the results of treatment properly carried out are always most satisfactory. The lesion is so superficial that a thorough removal of the crusts, followed by application of a simple parasiticide is sufficient for its cure. But the removal of the crusts must be thorough. This is best done by repeated bathing with warm water or with a warm boracic acid lotion. After the crusts are removed an ointment of white precipitate (ung. hydrarg. ammon. chl. gr. v ad ʒi) is efficient. When upon the scalp, the hair over the affected parts must be cut short, and the crusts soaked off either with boric starch poultices or with olive oil applied on lint under protective tissue; then the ointment is applied. Ecthymatous lesions are best treated by fomentations of boric acid lint, or if too extensive, by boric acid baths, followed by resorcin ointment (resorcin gr. x ad vaseline ʒi).

Chronic forms of Impetigo contagiosa. Under certain conditions an impetiginous eruption may gradually become less crusted and less exudative, and more scaly and drier, so that it takes on the characters, somewhat, of the type of eruption which we call 'seborrhœic eczema'. This sometimes happens with an ordinary impetigo of the face; some of the areas become drier, and scaly rather than crusted, and as such may persist after the other lesions have disappeared. Again, in the case of an impetigo of the scalp of long standing, the crusts may flatten down and the exudation become less, while at the same time the lesions merge with one another, so that a uniform red area covered with scaly crusts and with sharply-defined margin results. Similar areas are often seen upon other parts, as in the fold of the neck in front, in the axillæ, or in the groins, or even as isolated patches upon the limbs or trunk; they are always associated either with a chronic otorrhœa or nasal discharge, or else have arisen out of a more acute impetiginous eruption. Such patches occur very often in association with otorrhœa in the region around the discharging ear—on the cheek in front, on the neck below, and on the mastoid region behind, covering these parts in a uniform sharply-circumscribed reddened oozing area here and there crusted or scaly; after a time the area becomes less moist and more scaly, so that the patch comes to resemble a 'seborrhœic eczema'. These lesions are obviously dependent upon the purulent aural discharge, although

as to whether due to streptococcic infection or to infection by other organism or organisms, I have no facts to offer. I place them here as 'chronic impetigos' because of their association with 'pus-infections', and because their superficial character and sometimes apparent evolution from impetigo contagiosa suggest that they are related rather to the streptococcic type of lesion than to the more deeply-seated follicular pustular lesion of staphylococcic origin. Clinically, they seem to occupy a position midway between impetigo contagiosa and 'eczema seborrhoicum'.

Diagnosis and treatment. For practical purposes, the important point is to recognize their infectious origin and to distinguish them from true eczema. The patches are more sharply circumscribed than eczema patches, they do not itch, and are not subject to sudden exacerbations, and they require antiseptic applications for their cure.

PEMPHIGUS NEONATORUM

Pemphigus neonatorum was so named before its true nature was understood. It is really not a pemphigus, but a bullous impetigo contagiosa, occurring in new-born babies. Before the days of asepticism, it was of frequent occurrence in lying-in institutions; now it is seen only as isolated cases or, rarely, in small epidemics, generally in the practice of a midwife. This affection used to be confused with the rare form of bullous syphilide of new-born babies, but it is now known to be due to an infection by pus-organisms, and to be

quite independent of syphilis. Modern bacteriological research points strongly to a streptococcic origin, and clinical experience confirms this view, for it is very common to find other children in the same family with ordinary impetigo contagiosa, or that the mother or the nurse has either impetigo of the scalp or a phlyctenular whitlow upon the finger.

A secondary staphylococcic infection may result in the formation of subcutaneous abscesses. An erysipelas may supervene, and may result in death. Cases are recorded in which death resulted from pyæmia, infection in many instances having taken place through the umbilical cord. Other cases have been reported in which the lesions have become hæmorrhagic or gangrenous.

Dermatitis exfoliativa neonatorum. Mention must here be made of a very rare form of eruption in babies, *dermatitis exfoliativa neonatorum* or Ritter's disease. Here, in place of bullæ, there is a more or less generalized desquamation or exfoliation, with here and there raw areas or exudation beneath the scales. These cases are now generally admitted to be forms of pemphigus neonatorum in which the exudation is little marked, so that scales are formed rather than bullæ.

DIAGNOSIS. The recognition of pemphigus neonatorum is generally easy. The opinion that all bullous eruptions appearing in early infancy are necessarily syphilitic is, however, still widely prevalent; and this bullous impetigo of infants is frequently mistaken for the rare *syphilitic* bullous eruption of new-born

babies. In the latter case the infant is invariably wasted, the eruption is present always upon the palms and soles, the bullæ quickly dry up into reddish-brown scabs, and they are generally associated with coppery-coloured papules or macules. The infant with pemphigus neonatorum is usually well nourished, the lesions occur upon the body and limbs, only accidentally upon the hands and feet, and without the symmetrical distribution of the specific eruption, and they have not the characteristic coppery colour of the syphilitic lesions; often there is evidence of 'pus-infection' in the parent or nurse, or in other children.

TREATMENT. It is of the utmost importance to recognize that this eruption is due to a local infection by pus-organisms and that it is neither a true pemphigus nor syphilis; apart from the seriousness of the error in accusing the parents of syphilis, there is the danger of overlooking the possibility that the nurse or the doctor may have conveyed the infection, and is still doing so to other children, or even to parturient women. Also it is important to realize that the infant's own life probably depends upon the taking of immediate measures to remove the eruption by local treatment.

If the case be treated at once the lesions will immediately subside; while if local measures be neglected, as is sometimes the case, because it is supposed that the child is suffering from syphilis or pemphigus, it is very likely that septicæmia or pyæmic infection will take place.

The local measures are simple: the baby should be placed, several times a day, in a warm bath containing boracic acid or other mild antiseptic, and the lesions afterwards dressed with boric acid ointment or with white precipitate ointment.

Bullous impetigo may also occur in older babies; in them the lesions are often especially abundant about the groins and other flexures. In the napkin region large excoriated or glazed areas with phlyctenular margins may be produced, and such areas may extend widely over the lower part of the abdomen, the genitals, and the upper parts of the thighs and the buttocks. The front of the neck is also a favourite site for such lesions. Ordinary impetigo may also be present upon the scalp or face, and there may be bullous or crusted lesions upon other parts. [See also p. 42.]

The two following maladies, although not of very common occurrence, are briefly referred to here on account of their possible relationship with phlyctenular impetigo. It is almost certain that they are forms of local infection; the lesions of one are attributed to the bacillus pyocyaneus; of the other, by some—although with less reason—to the bacillus coli. There is a possibility, however, that the streptococcus may play an important part in the causation of both.

DERMATITIS GANGRÆNOSA INFANTUM

This eruption generally occurs as a sequela of varicella. It is said also to arise spontaneously, and, possibly, sometimes as a complication of bullous im-

petigo. The disease usually attacks infants or quite young children who are debilitated. When it follows varicella the lesions of this affection, instead of drying up, become markedly inflammatory, spread rapidly, and either remain bullous for a time or become covered with a central dark crust. Ulceration takes place beneath the crust, and a deep, punched-out ulcer with central black gangrenous crust or slough is formed. The lesions may run together into large, irregularly-shaped ulcers. If recovery takes place, well-marked scars result. The lesions may be generally distributed or grouped over large areas, as the back and buttock, or the abdomen. The prognosis is usually bad; the infant may die of septicæmia and exhaustion. In many instances there has been found after death general tuberculosis. The cause of this affection is not certainly determined. Some observers have found streptococcus. The bacillus pyocyaneus has been found in many cases both in the lesions, and not only by culture but deeply seated in sections, and in the blood. In a case of my own I found both streptococcus and bacillus pyocyaneus.

TREATMENT consists in disinfection of the gangrenous ulcers: the lesions may be frequently bathed with a lotion of perchloride of mercury (1 in 2,000), or boric acid baths may be given, and boric acid fomentations be applied and frequently changed. The infant must be removed from unfavourable hygienic surroundings and be well fed.

VACCINIFORM DERMATITIS

Another eruption, although of uncommon occurrence, must be mentioned here as bearing possibly a close relationship to *impetigo contagiosa*: this is an eruption occurring in babies, about the inner sides of the thighs, on the buttocks, and about the genitals, and consisting of vesicles or pustulo-vesicles, which, becoming easily ruptured in these situations, give rise to circular erosions or punched-out ulcerations. These lesions when in the moist flexures or close to the anus may have much the appearance of syphilitic mucous patches, and the eruption in its entirety may easily be mistaken for syphilis. The *bacillus coli* has been found in these lesions by Mantegazza, who thought that it might be the cause of them; but *bacillus coli* may be found upon any lesions in this situation. In a case under the care of Dr. Colcott Fox I found streptococci both in the ulcers around the buttocks, and in a recent vesicle which had appeared in a less usual situation—on the foot.

Local antiseptic applications are the appropriate treatment.

IMPETIGO OF BOCKHART, PUSTULAR FOLLICULAR IMPETIGO, STAPHYLOCOCCIC IMPETIGO

Impetigo of Bockhart differs from the ordinary *impetigo contagiosa* of children in that its lesions are pustular, and seated always at a hair follicle, while

those of the latter are phlyctenular and situated in the superficial layers of the epidermis.

Follicular impetigo, as a primary infection, is less common in children than phlyctenular impetigo. It is frequently met with in adults as one form of sycosis menti. In children it occurs usually either as a complication or as sequela of streptococcic impetigo, or as an infection consequent on some local traumatism, such as is produced by the scratching of a pruritic eruption, or by the application of a strong liniment or ointment.

The lesions may vary from small pin-head sized pustules to hemp-seed sized pustules—always centred by a hair—up to boils or subcutaneous abscesses. The most typical lesions are the medium-sized pustules; these after a time dry up into crusts, which eventually fall, leaving a minute scar in the place of a hair-follicle. Clinically, this form of impetigo is met with (*a*) as discrete pustules in the neighbourhood of the lesions of an ordinary impetigo, (*b*) scattered more or less over the limbs and trunk in some cases of scabies or of lichen urticatus, (*c*) in rare instances involving the whole of both legs, or the legs and arms, in an eruption of closely-set pustules—such cases probably follow some infection during a pruritic eruption, (*d*) during the course of the treatment of ringworm of the scalp with strong applications a follicular pustular impetigo may arise, either as isolated, medium-sized pustules, or sometimes thickly over the whole scalp, and even upon the neck and shoulders, (*e*) in babies

a follicular pustular impetigo is apt to follow pemphigus neonatorum, and in these cases, as will be presently described, the pustular lesions may become subcutaneous abscesses.

TREATMENT. These follicular impetigos are best treated by frequent and thorough bathing of the part affected with hot water, combined with the application of an antiseptic, such as the dilute white precipitate ointment (ung. hydrarg. ammon. dil. gr. v ad ʒi; to which may be added with advantage gr. x resorcin). At the same time iron tonics may be given. The immediate improvement after a saline purge is sometimes very marked. The larger lesions must be incised and fomented.

MULTIPLE CUTANEOUS AND SUBCUTANEOUS ABSCESESSES IN BABIES

This condition is seen most often among infants in hospital practice. The lesions consist of numerous variously-sized elastic tumours, from the size of a pea, or smaller, up to nodules as large as a walnut, distributed irregularly over the whole skin area. They may be superficial, and then often dusky red in colour from involvement of the skin itself, or situated more deeply and covered with skin of normal colour.

The origin of these abscesses is not fully determined; in most cases that have been examined bacteriologically *staphylococcus pyogenes*, generally in pure culture, has been found. Sometimes the child has been the victim of tuberculous infection or of

pneumonia, but in these cases only staphylococcus has been found in the lesions. Some observers maintain that infection of the skin may take place through the circulation, others that it occurs from outside. My own view is that the infection is a staphylococcic one, taking place at the hair-follicle, and that these cases are really forms of the impetigo of Bockhart; generally the smallest lesions of all are seen to be distinctly follicular—they are, in fact, small follicular pustules or boils—and between these and the larger abscesses all stages may be traced. In several instances I have observed these multiple abscesses follow pemphigus neonatorum, or bullous impetigo in older infants; the early phlyctenular or streptococcic impetigo being followed by secondary follicular and staphylococcic impetigo.

Less numerous or single cutaneous or subcutaneous abscesses do occur, but these are syphilitic gummata or tuberculous abscesses, and cannot be classed as multiple cutaneous abscesses of infants.

TREATMENT. The treatment of these cases is, first of all, to remove any streptococcic impetigo by appropriate applications; to incise all the abscesses, and to apply fomentations to the larger ones. Frequent baths of boric acid solution help to disinfect the skin and the incised lesions. In most cases the result of opening the abscesses is very striking, and the condition of the child at once improves, while the wounds quickly heal. In some cases, however, the child succumbs, either from some concurrent affection, or from septic absorption, or from exhaustion.

SOURCES OF INFECTION IN THE ERUPTIONS DUE TO
PUS-ORGANISMS

Sometimes these eruptions are no doubt due to infection of wounds or abrasions of the skin-surface by micro-organisms already present upon the skin; others are obviously due to infection from pre-existing foci, as otorrhœa or purulent nasal discharges; but in the majority of cases the infection can be traced to another child or adult similarly affected. This is more especially the case in the phlyctenular impetigo contagiosa, and in related eruptions such as pemphigus neonatorum. The influence of the local mechanical injury as a factor in the causation of these eruptions is noteworthy; impetiginous eruptions secondary to scratching, as in pediculosis, in scabies, or in lichen urticatus, are generally, primarily at any rate, of the phlyctenular or streptococcic type; while eruptions due to local chemical agents, as tar or strong ointments used in the treatment of ringworm, or to mechanical agents other than scratching, as the application of dirty poultices, are follicular and pustular in type, or of staphylococcic origin.

THE RELATIONSHIP OF LOCAL PUS-COCCI INFECTIONS
OF THE SKIN TO CONDITIONS OF GENERAL OR
VISCERAL INFECTION

In spite of the very great prevalence of streptococcic and staphylococcic infections of the skin, it is very rare indeed to meet with a case in which general or visceral

infection is present at the same time. One would be inclined to suppose that a child who carried about, perhaps for weeks, an abundance of lesions swarming with streptococcus or with staphylococcus, or with both, would sooner or later become generally infected by these organisms, and that broncho-pneumonia, empyema, septicæmia, or pyæmia, would be frequently occurring among these patients: but this does not happen. Its non-occurrence may be explained in two ways—either that the micro-organisms infecting the skin are of a lower virulence or of a different strain to those which flourish in the blood or internal organs; or that the means of defence of the skin is sufficiently perfect to stay invasion through this channel; while possibly the presence of the large numbers of micro-organisms in the skin stimulates the general power of resistance (i.e. the production of protective opsonins). The fact that erysipelas does not occur in conjunction with streptococcic impetigo, even in the presence of an open wound, points to a different strain of streptococcus.

But although general or visceral infections are unknown, or at any rate, very rare, among older children affected with impetigo, they do occur in infants. In infants the power of resistance to the attacks of micro-organisms is very much less than in older children—possibly because they are virgin soil and have not yet acquired immunity. The same organisms which produce impetigo contagiosa, and impetigo of Bockhart in older children, lead to bullous impetigos and multiple abscesses in infants; and infants suffering

from either of these affections may die of septicæmia or of visceral infections unless the eruption be checked by treatment. We see, too, that in somewhat older infants, who are in bad condition of health, these simple eruptions becoming ecthymatous; or in the presence of debilitating diseases—more especially of tuberculosis—that the impetiginous lesions may become gangrenous, as in dermatitis gangrænosa infantum.

CHAPTER VII

AFFECTIONS WHICH ARE PROBABLY DUE TO LOCAL MICROBIC INFECTION

THERE are several affections of the skin of common occurrence which from clinical evidence appear to be of a local infectious nature, but in which the proof of such origin is not yet bacteriologically established. Such are—a variety of eruptions which have been included in the group of so-called *seborrhœic eczema*; *common warts*; and the allied affection *molluscum contagiosum*.

SEBORRHŒIC DERMATITIS, OR ECZEMA SEBORRHOICUM

Eczema seborrhoicum is a very difficult subject to write about, because dermatologists are not yet agreed either as to what diseases are to be included under this title, nor even as to whether any of the affections to which the term has been applied have anything to do either with eczema or seborrhœa. However, it is convenient to retain, at any rate for the present, this the original name given by Unna to a class of eruptions which have certain recognized features in common, namely :—

(1) That they are associated with a scaliness of the scalp in which the scales have a moist or greasy appearance.

(2) That they have a special predilection for areas where the sebaceous glands are most abundant and most fully developed—as the scalp, the face, the chest and the back; or for moist areas, as the flexures—axillæ, groins, &c.

(3) That the lesions themselves have a tendency to be circumscribed and to extend in a circinate manner, while they are covered more or less thickly with moist or greasy yellowish scales.

(4) That the lesions often become ‘eczematized’ or ‘impetiginized’, that is, moist and weeping and crusted, apparently from local irritation.

(5) That the eruption yields readily to mild sulphur applications.

Clinically many features of these eruptions suggest that they are of a local parasitic origin, and the recent researches of Sabouraud, although as yet unconfirmed, tend to show that one form at least (the seborrhœa capitis of Hebra and the lichen circinatus of older writers, two frequently associated conditions) is the result of the local action of the *staphylococcus epidermidis albus*. But the proof of the specificity of this micro-organism is difficult, and at present far from complete: it can be obtained readily in culture from all sorts of lesions on the skin, or even from the normal skin, and it is only its presence in the lesions of ‘seborrhœic eczema’ in the form

of colonies that suggests that it is present as a causative agent. I have already drawn attention (p. 109) to the strong clinical resemblance of certain forms of 'chronic impetigo' to 'seborrhœic eczema': in fact, one often meets with eruptions, obviously of 'pus infection' origin, and hesitates whether to label them impetigo or seborrhœic eczema.

However, taking the clinical features which I have named above as a basis, I would class the following types of eruption which are met with in children as belonging to this group:—

- (1) The so-called 'eczema seborrhoicum' of babies.
- (2) An acute, more or less generalized, dermatitis having some tendency to be patchy and follicular and occurring in older children.

'Eczema seborrhoicum' in infants. A form of eruption having the characters detailed below is of fairly common occurrence in infants. Upon the scalp there are either nummular or irregular patches, or there may be a single large vertical patch, more or less thickly covered with yellowish greasy-looking scales. Upon the face, especially in the naso-labial folds or extending further on to the cheeks, on the neck or behind the ears, there are red, sharply circumscribed areas similarly covered with yellowish fatty-looking scales, or in parts, as behind the ear or on the neck, the surface of the patches may be moist and oozing. Similar areas may occur in the groins, or even over the whole napkin region and somewhat beyond, in one sheet, the area being sharply circumscribed and

generally slightly raised above the normal surface. Sometimes the eruption is more marked upon the scalp and face, sometimes more marked upon the abdomen, thighs, and buttocks. The history in these cases is usually that the eruption has come out recently and spread rapidly, and I have invariably found that the mother was also affected with 'seborrhœic dermatitis' of the scalp, and often, too, of the face (Fig. 3).

These eruptions clear up with remarkable rapidity on the application of a mild sulphur ointment, and this fact alone distinguishes them clearly from cases of ordinary eczema. Sometimes there may be a difficulty in distinguishing them from the eruption of congenital syphilis, but attention to certain points will usually



FIG. 3.

ensure a correct diagnosis; the lesions have a yellowish rather than a coppery colour; they are absent from the hands and feet, and there are no mucous membrane lesions in the form of snuffles or of cracks or fissures about the mouth, or of moist patches at the anus (cp. p. 42). The result of treatment confirms the diagnosis.

Seborrhœic dermatitis in older children. In older children I have not met with the type of 'eczema seborrhoicum' just described as occurring in babies, but of the following eruption, which from its clinical features, I would put into this group, I have frequently seen examples.

The eruption begins upon the scalp, or there is a history of the scalp having for a long time been scaly or crusted at the vertex; suddenly an eruption bursts out upon the rest of the scalp and upon the neck, and spreads rapidly over the whole body. The eruption may consist either of variously sized circular or irregularly oval patches made up of follicular papules with apical scales or crusts, and with other moist or greasy crusts or scales between the papules, the whole forming a reddish yellow more or less sharply circumscribed scaly patch. There are usually many such patches, from an inch to two or more inches in their longest diameter, over the trunk and upper part of the limbs. In other cases the eruption is more diffuse, though still consisting of follicular scale-topped papules, with the skin more or less erythematous or even scaly between; generally this diffuse papular eruption is most marked over the neck and shoulders, but it may extend also to the rest of the trunk and to the limbs. Sometimes there may be a mixture of grouped and diffuse papules.

TREATMENT. This eruption too clears up with remarkable rapidity on the application of a mild sulphur ointment.

There are other affections in which there occur circumscribed scaly patches, but which, though sometimes included under the term 'seborrhœic eczema', have characters which necessitate their separation from this group. These are *pityriasis capitis* or *dandriff*, *pityriasis alba* or the dry scaly patches so common upon children's faces, and a less common form of eruption in more widely distributed *chronic circumscribed scaly patches* which I shall presently describe.

PITYRIASIS CAPITIS

Pityriasis capitis, or 'dandriff', is a common affection of childhood from the age of five or six years and onwards. There is a more or less scaly condition of certain parts of the scalp; the scaling is powdery or in minute dry flakes; it occurs chiefly upon the vertex and the upper part of the parietal or temporal regions, the rest of the scalp being free. Close inspection reveals sharply margined scaly discs or a larger sharply margined area from fusion of several discs. The scaling is due to an abnormal exfoliation of horny cells; the 'bottle bacillus' is found in abundance, and it has been suggested that it is to this organism that the scaling is due.

The affection is of itself of little importance, and it is in fact generally overlooked or unheeded by parents unless it occurs to a marked degree; but, sometimes, when the scaling is marked, it may have to be distinguished from ringworm. A careful examina-

tion with the lens shows that broken stumps are absent.

If the branny desquamation becomes marked and continues, as it often does, until puberty, it generally at this time changes its character, and the scales become greasy in appearance, a condition which has long been known as 'seborrhœa capitis' and which may be associated with fall of hair.

TREATMENT. The best and simplest treatment is a frequent washing with an alkaline soap or lotion. Hebra's spirit-soap may be used as a shampoo once a week, or several times a week the head may be washed with a saturated solution of borax.

PITYRIASIS ALBA

There is a form of eruption, of very frequent occurrence in children, consisting of well-defined roughened or slightly scaly patches, situated on the face, usually about the mouth and nose. It has been known for long under the name of *pityriasis alba* or *pityriasis simplex*, but it often goes by other names, according to the view of the observer as to its nature; for example, 'dry eczema,' 'seborrhœic eczema,' &c. In France it is commonly known as 'dartre volante', and in England the parents usually describe it as 'scurfy patches'. The patches are usually pale red in colour, and sharply circumscribed. The breaking up of the superficial epidermis into minute adherent scales produces an appearance of roughness. Sometimes the patches, which may be individually from

half an inch to one or two inches across, run together into a sheet around the angles of the mouth, or on the lip or cheek at the side of the nostril. The patches become flushed or reddened upon local irritation, such as washing or exposure to cold air; they seem especially liable to be brought out by strong soaps and by exposure to east winds. Sometimes these patches are associated with similar, though often more hyperæmic and more scaly, patches, upon the limbs or trunk.

As to the nature of these patches there is great difference of opinion. Many regard them as a form of eczema; but the fact that they often occur in epidemic form suggests an infectious nature. Sabouraud has recently maintained that they are of streptococcic origin, and he has named them *impetigo furfuræuse*. Whitfield, on the other hand, believes that the streptococcus epidermidis albus is responsible. In favour of the view that these 'scurfy patches' are related to impetigo contagiosa is the fact that identical patches often follow the latter eruption. These patches, too, are nearly always, if not always, associated with nasal discharges and crusted lesions just within the nostril, and these nasal discharges often give pure cultures of streptococcus. An objection to this view is the extreme obstinacy of these patches to treatment, which is so unlike the behaviour of the lesions of impetigo contagiosa. They differ altogether from the condition known as eczema seborrhoicum: the scales are not greasy; the lesions

are not associated with 'seborrhœa capitis', and they are not readily cured by sulphur applications.

TREATMENT. These patches are sometimes very difficult to remove. Avoidance of strong soaps and application of soothing lotions such as calamine lotion, or of Lassar's zinc-starch-paste, often keeps them in abeyance, but it seldom removes them. For this it is necessary to rub on some strong application, such as an ointment containing four per cent. each of resorcin, salicylic acid and sulphur, in order to peel off the affected epidermis. Attention should of course be paid to any nasal discharge.

CHRONIC SUPERFICIAL DERMATITIS IN CIRCUMSCRIBED PATCHES

I have met with pretty frequently in children certain patches of chronic dermatitis which are not mentioned in textbooks, or which are possibly included under the terms chronic eczema or eczema seborrhoicum, but which have nevertheless certain distinctive characters which entitle them to be considered apart. The clinical features of these eruptions may be summed up as follows:—The patches occur upon the limbs and face and sometimes upon the trunk, and they are often distributed with some degree of symmetry. The patches are oval or circular or sometimes irregular in shape, but usually with well-defined margins; they are pale red in colour, often with a shade of yellow or brown. They have a dry aspect, and their surface is generally covered thinly

with small adherent crusts or scales. On closer inspection it appears to be studded with not very prominent pin-head sized smooth or scale-topped papules. There is little itching, and consequently little sign of scratching, but the patches get red and burning at times, as after washing or exposure. The apparent papules are found on closer examination—on carefully scraping with the forceps—not to be papules at all, but tiny firm adherent crusts which leave upon removal moist shiny surfaces. There is little or no infiltration of the skin, and the lesion appears to be quite superficial. The patches may attain a size of several inches in diameter; they are sometimes widely distributed, most often upon the limbs and usually with a striking symmetry. They are very resistant to treatment, and only the strongest irritant applications, chrysarobin for example, seem to have any effect upon them. Even then they are not cured, for after a longer or shorter interval they reappear upon the same spots. These patches differ from ‘eczema seborrhoicum’ in that they are drier in appearance and without the ‘greasy’ yellow scales; sulphur applications do not remove them, and they are not associated with ‘seborrhœa capitis’.

This eruption, in most of the cases I have seen, has been associated either with a chronic aural discharge or with a chronic rhinitis, which seems to suggest that it may be of local infectious origin; but its extreme obstinacy to treatment, its tendency to recur,

and its symmetrical distribution are perhaps against this view.

To Lichen scrofulosorum (described upon p. 155), it bears a close resemblance in its clinical course and characters, but differs in that the lesions are distinctly not made up of follicular papules, that they occur symmetrically upon the limbs and face, rather than with irregular distribution upon the trunk, and also in their obstinacy to treatment and their non-association with tuberculosis.

VERRUCÆ, OR WARTS

Warts are small tumours composed mainly of epithelium and with a central axis or core of vascular connective tissue. They are probably due to some infective agent which has not yet been discovered.

Verruca vulgaris is the common form of wart mostly seen in children and young people. These warts may occur singly or in groups, and upon almost any part, though their favourite seats are the hands, the face, and the scalp. Sometimes they may be present in vast numbers. Warts may vary much in size and shape. They form hard projecting cylindrical or conical sessile growths varying in dimensions from that of a hemp-seed to a pea. The surface may be smooth or broken up into lobes. The growth may be of the normal colour of the skin, or greenish in tint or almost black from changes in the horny cells composing its surface layers. If a wart be accidentally torn up, or intentionally pulled off after partial destruction

by caustics, it will be found to dip down into the vascular tissues by a multitude of root-like processes ; —these in microscopical sections are seen as processes of epithelium between which are dovetailed vascular loops from the true skin. Apart from the disfigurement caused by warts, it is from their presence in situations where they are liable to be thus partially torn off, giving rise to pain and a little bleeding, that they are chiefly troublesome. Warts may, however, become inflamed, probably always from pus-coccic infection, so that the base becomes red, tense, and painful ; and sometimes suppuration occurs.

The evolution and course of warts is most capricious. They may come slowly or rapidly. They may remain for months or years, and then sometimes spontaneously disappear.

ETIOLOGY. It is now generally admitted that they are contagious. But, although micro-organisms have been found by some observers, there is a want of uniformity in their findings, and, at present, no proof that any of these are causative. The belief that these growths are infective and contagious rests rather upon clinical evidence ; chiefly their frequent occurrence in several members of a family, and their distribution and method of spread ; but also upon one or two examples of direct contagion, as the often-quoted case of Payne's experience, and Lang's experiment in which he inoculated his own fingers.

Verruca plana juvenilis—Plane warts of children.—This is a form of wart frequently seen in children.

The growths consist of quite small flat disc-like elevations—raised only very slightly above the skin-level—with rounded or with angular margins. They are of the colour of the normal skin or pale, sometimes deeper brown. They occur generally upon the chin, cheeks, or forehead, but sometimes upon the hands or even upon the forearms. They often occur alone, but sometimes together with the ordinary warts, so that there may be verrucæ vulgaris upon the hands and verrucæ planæ upon the face.

Verruca filiformis and *verruca digitata* are only modified forms of the common wart. The first is slender and pointed, even thread-like, and is seen generally upon the lax tissues of the neck or eyelid. The latter is a wart which is merely rather more papillated than usual. It occurs generally upon the scalp.

PATHOLOGY. Histologically warts are made up of an overgrowth of epidermal cells; a multiplication of the prickle-cells (acanthosis) and of the horny cells (hyperkeratosis). In the common wart the horny-cell growth may be very marked; in the plane-wart it is chiefly in the prickle-cell layer. There is always, too, a little cell infiltration in the corium, and vascular connective-tissue tufts pass into the growth. The histology of these lesions illustrates, in a simple, uncomplicated form, a process which is met with in many skin lesions, namely, acanthosis or overgrowth of the prickle-cell layer, and hyperkeratosis or multiplication of the cells of the horny layer. If we

accept the view of the microbic origin of warts, the occurrence of this process to a marked degree is interesting as illustrating the method of defence of the skin against organisms by local cell-multiplication. Here the organism is attacked entirely by the epithelial cells, beyond which barrier it cannot get, and probably has no need to get, since it, in its turn, presumably flourishes upon the epithelial cells. There is a certain amount of cell infiltration in the corium, but this is comparatively unimportant, though the vascular hypertrophy supplies the epithelium with nourishment. The epithelial-cell multiplication is, in fact, the most prominent part of the protective reaction. In chronic infection by pus organisms, or by the tubercle bacillus, similar overgrowth of prickle-cell and horny-cell layers takes place, as a part of the general cell-multiplication of the inflammatory reaction, but as a secondary process, unimportant compared with the deeper cell-proliferation.

TREATMENT. The superficial character of the whole process which leads to the formation of warts explains their ready removal by radical measures such as snipping off with scissors, thorough destruction by cauterization, or by electrolysis of their base: while more superficial methods such as the application of salicylic acid ointments or collodion are generally slow and often unsuccessful. The best methods are: for filiform warts or for those with more or less slender base; removal with scissors: for more sessile warts; electrolysis—the negative needle is thrust

through the base and a current of from two to four milliamperes passed through for about thirty seconds. After a few days the wart will shrivel and drop off. For efficient cauterization of warts strong applications—such as glacial acetic acid, nitric acid, caustic potash—are necessary, and these must be applied with care; but scissors or electrolysis are better. Warts may also be removed by the X-rays. A ‘pastille’ dose (= 5 H units) must be given and repeated in one month if necessary; and if several warts are present over a limited area this is a convenient method of treatment.

For plane warts a daily application of an ointment of sulphur with α 15 of carbolic acid is usually sufficient; it acts by peeling off the superficial layer of the epidermis.

Of late years many methods of treating warts by internal administration of drugs have been advocated. Those most in use are repeated doses of magnesium sulphate, until purging is produced, and small doses of arsenic. Many striking cures are reported, but the tendency of warts to disappear spontaneously may account for some of these cures. Personally, I have never succeeded with either of these drugs.

MOLLUSCUM CONTAGIOSUM

Molluscum contagiosum, like the common wart, is an epithelial overgrowth; and, as in the case of warts, it is probable that the disease is of an infectious character. The epithelial overgrowth differs from that

of warts, however, in that peculiar bodies called 'molluscum bodies' are produced at the centre of the growth by degenerative changes of the epithelial cells.

The molluscum lesions consist of little semi-globular or flat cylindrical button-like growths, each with a depression or 'umbilication' at the centre. They present no inflammatory redness, but are of the colour of the normal skin, though having a waxy or semi-translucent appearance. They vary in dimensions from pin-head to bean-sized lesions up to, in exceptional cases, growths as big as a filbert nut or even larger. As a rule they range in size below that of a split-pea. Their favourite seats are the face, the scalp, the neck, and the hands in children, while in adults they are often seen, sometimes in large numbers, upon the back, or on the genitals. They may sometimes be grouped about a limited area on the part affected, and they may be arranged in a line along the seat of a scratch mark. On squeezing a lesion between the thumb-nails, from a small and medium-sized one there shoots out a firm translucent lobulated mass, leaving a small, bleeding cavity; from a larger one is extruded a solid cheesy-looking substance, due to the softening of the central part of the contents. On account of the central depression and of the expulsion of this semi-solid substance on squeezing, these growths were formerly supposed to be connected with the sebaceous glands; but this idea the microscope has proved to be erroneous.

The lesions are ordinarily unaccompanied by pain

or by inflammatory reaction; but sometimes a lesion may become infected by pus organisms, when it inflames and suppurates and becomes painful. Unless inflamed in this way they do not leave scars. The lesions are of long duration, and unless removed by treatment they may last for months or years. Sometimes, like warts, they spontaneously disappear.

PATHOLOGICAL ANATOMY. The lesions arise in the prickle-cell layer of the epidermis: an overgrowth of prickle-cells takes place at one spot, probably as a protective reaction to a (as yet undiscovered) micro-organism; the new-formed prickle-cells rapidly become transformed into homogeneous masses—molluscum bodies—by a process of degeneration, or rather by conversion of their substance into masses of normal keratin. In a section of a very early lesion there is seen under the microscope a globular swelling of the epidermis with a central mass of ‘molluscum bodies’: at a more advanced stage the growth has become folded into wedge-shaped lobules converging to a centre, the thin edges of the wedge-shaped lobes being composed of collections of molluscum bodies: the epidermis covering the central part of the growth has given way and some of the molluscum cells have escaped, leaving a gap. Clinically this gap shows itself as a dimple in the middle of the growth, through which the mass of molluscum bodies may be squeezed out.

ETIOLOGY. This affection, as the name given to it implies, has long been suspected to be of a con-

tagious nature. Although no micro-organism has yet been discovered, there is strong evidence, both clinical and experimental, of its contagiousness. Small family epidemics are common, and many epidemics in schools and institutions have been reported. Accidental inoculation has occurred amongst physicians, and successful experimental inoculations have been made by many observers. The inoculation period varies, but often is very long—several weeks.

Domestic birds are liable to a similar, if not identical, affection which has been called epithelioma contagiosum of birds, and instances have been reported of persons handling affected birds contracting what appeared to be molluscum contagiosum.

Molluscum contagiosum is more common among children of the poor than in the better class.

DIAGNOSIS. The lesions are so characteristic that it is scarcely possible to make an error in diagnosis. When quite small, unless very carefully examined, they may be mistaken for ordinary warts, and when inflamed their nature may be masked.

TREATMENT. The treatment consists simply in expressing the contents of the tumours, when they quickly dry up. To facilitate expression, which is done between the thumb-nails, a minute incision may first be made.

CHAPTER VIII

TUBERCULOSIS OF THE SKIN

TUBERCULOUS affections of the skin may be divided broadly into two groups; in the one are those affections the lesions of which are known to be due to the local presence of the tubercle bacillus; in the other are certain affections whose close relationship with tuberculosis is admitted, but in which evidence of the presence in the lesions of the tubercle bacillus is wanting or is incomplete. The first group includes (1) *Lupus Vulgaris* and its modifications, (2) *Scrofulodermia*, and (3) the very rare examples of acute tuberculous ulcer. The second group comprises the affections, (1) *Lichen Scrofulosorum*, (2) *Acne Scrofulosorum*, (3) *Erythema Induratum*, now collectively known as 'tuberculides'.

LUPUS VULGARIS

Lupus vulgaris is the most typical form of tuberculosis of the skin. It is unnecessary here to discuss the question of the tuberculous nature of lupus. Suspected for many years, this was eventually proved by the cultivation and inoculation experiments of Koch.

Lupus vulgaris commonly makes its first appearance during childhood, and may, if unchecked, steadily advance, leading eventually to the extensive destruction of tissues often seen in older children and in adults. The study of lupus in children is thus of special interest and importance, because a more widespread knowledge of its early characters and the ability to recognize it at this period, when the lesions may be readily removed by excision or by other means, would diminish considerably the number of such severe cases in after life.

The Lupus Nodule. The chief characteristic lesion of lupus vulgaris is the *lupus nodule*. Although it may sometimes be hidden by secondary processes, which give the eruption different clinical appearances, yet it must always be regarded as the essential lesion. The lupus nodule is situated intradermically. It is a pin-head to a hemp-seed sized, reddish-brown nodule of semi-translucent aspect ; or it may be larger by fusion together of several nodules. The nodule is firm to the finger and does not disappear on pressure, though it becomes paler or browner, merely losing its reddish tint. Although firm to the finger it is soft and friable to a hard instrument, by which the tissue composing it may be easily scraped away from the healthy tissue.

GENERAL CLINICAL FEATURES. Lupus vulgaris commonly appears before puberty and after two years of age. It may appear upon almost any part, but its favourite points of origin are the cheek or nose, and

next about the knees, and the hands and wrists, and the buttocks. It makes its first appearance as a small lupus nodule, or there may be several such grouped together. Cases are not always, however, brought to a medical man at this early stage, and often when first seen the nodules have enlarged and blended into a dull red, slightly raised, infiltrated patch, and the patch may be more or less scaly, or crusted even sufficiently to obscure the characteristic reddish-brown nodules; but the history of the long duration of the lesions suggests lupus, and the typical nodules are evident on careful examination. If such a patch be allowed to extend, the lesions may break down, either under a scaly crust, or openly as superficial ulceration, leading eventually to scarring; at the same time the disease spreads at the margin by the formation of fresh nodules, so that in extensive cases one sees scar-tissue, nodules, and crusted lesions, and open ulceration. The rapidity with which the lesion extends varies greatly in different cases; sometimes a lupus nodule or group of nodules may only very slowly extend or remain stationary for years or even fade away altogether; in other cases the growth may be comparatively rapid, so that a single small nodule may extend to a patch an inch or two across, in not many months.

Although the middle and lower parts of the face are the commonest seats of lupus—possibly because these parts are more exposed to infection by kissing or by contact with the nails or fingers, or with soiled



LUPUS VULGARIS
(EARLY NODULES)



LUPUS VULGARIS
(MORE ADVANCED)

handkerchiefs—it by no means occurs only on this region ; it may appear upon almost any part, and it is not uncommon upon the hands and wrists and about the elbows and knees and feet or upon the buttocks—all parts, be it noted, liable to local injury, and parts which are often uncovered in children.

In many of these cases it is found that a parent or relation is dying, or has recently died in the house, of consumption, a fact which points towards the origin of these lesions by local infection. Occasionally the infection obviously takes place in some small, open wound, as after piercing the ears, on vaccinal sores, or at the seat of recent impetigo or eczema. Less often, lupus may begin at the margin of a ruptured lachrymal abscess or at the mouth of a sinus from a tuberculous gland. It may begin, too, in the mucous membranes, particularly of the nose, and spread thence to the skin. More frequently, perhaps, the mucous membrane is secondarily attacked by spreading, in old and extensive cases, from the skin. The mucous membranes of the mouth, of the nose, and of the conjunctive may be attacked—less often the pharynx—the lupus appearing in these situations as brilliant red, mammilated areas which bleed readily on account of the friability of the tissue.

Multiple Lupus. As a rule the lesion of lupus is single ; but cases are not at all uncommon in the early stage, as met with in children, in which there are several or even many lesions. Such cases are known as *Multiple Lupus*, and it is a curious and

interesting fact that the eruption almost invariably appears immediately or soon after an attack of *measles*. From three to four up to as many as twenty or even more lesions are found scattered on the limbs and trunk. Sometimes the lesions present the typical apple-jelly nodules of lupus; more often they are scaly or crusted—‘psoriasiform’ in type—and not infrequently they are raised and warty-looking—‘verrucose’ type.

In many of these cases of multiple lupus there is a tendency for the lesions to spontaneously disappear after a time, or some may go and others persist, or, exceptionoually, the majority may remain and, if untreated, continue to spread until large patches are formed. Sometimes in these cases of multiple lupus careful search will reveal tuberculous lesions elsewhere, as enlarged mesenteric glands or lung trouble, or there may be enlarged glands in the neck; in many cases no other evidence of tubercle can be found—though this may develop subsequently, as in one of my own cases which was afterwards treated for hip disease. The skin lesions in these cases have been explained by the softening of a pre-existing tuberculous focus by the toxins of measles whereby tubercle bacilli are set free in the blood-stream. Another possible explanation is that each lesion may be the result of local inoculation on some previously existing eruption, such as varicella; but the enormous number of lesions in some of the reported cases, and the absence, except in one or two instances, of a history of varicella or

of other eruption except that of measles, is opposed to this view.

Cases in which the lesions are very numerous are not very common, but cases in which there are from two to six lesions, or thereabouts, are, I think, almost as frequent as single-patch lupus. My own observation leads me to believe that some of the single-patch cases originate as multiple lupus subsequent to measles, for in many instances there is a history of other patches which have faded.

Lupus Verrucosus. I have referred above to 'psoriasiform' lupus and to 'verrucose' lupus. The psoriasis-like lesions are merely due to a superficial crusting of the lupus nodule, which really should deceive no one as to their true nature; on removal of the crusts with soap and water, or with the forceps, the lupus nodule is revealed. But the type of lupus called *Lupus Verrucosus* is much more marked in individual characters; here, instead of the lupus nodule, one finds a lesion with dusky-red, infiltrated base, and a surface presenting a dark-brown, projecting warty formation sometimes topped with horny crusts. Such lesions are common in lupus about the fingers or toes, and knees and elbows. In some cases of multiple lupus all the lesions in these situations are verrucose, while the lesions upon the face and softer parts are ordinary lupus nodules. The lesions of lupus verrucosus may be split-pea sized up to an inch or more in diameter; occasionally there is central scarring so that a kind of warty ring is formed.

Advanced Cases of Lupus. I have here dealt only with lupus vulgaris as it is seen in its early stage in children: the later, more extensive lesions, destroying a wide extent of skin or tissue—nose, lips, and ears—form rather a disease of later life than of childhood, and, moreover, descriptions of them are to be found in every textbook. Here I wish particularly to emphasize the importance of the early recognition of lupus in childhood.

In order to more clearly explain the clinical appearances of scaling and crusting and wart-like formation which may mark the early lupus nodule, I shall briefly refer to its histological structure.

HISTOLOGICAL STRUCTURE OF THE LUPUS NODULE. The structure of the lupus nodule is that of a typical tuberculosis. The nodule occupies the superficial part of the true skin, where it destroys and replaces the normal tissue, itself afterwards being converted into scar tissue. It is made up of epithelioid cells and lymphoid cells, with the special cells of chronic inflammation, plasma-cells and giant-cells, in fair abundance. Tubercle bacilli are to be found in the giant-cells, but they are rare and require careful search.

Besides the inflammatory cell exudation in the derma changes also take place in the epidermis. The tendency is, as in all chronic inflammations adjacent to the epidermis, for this to become thickened by the multiplying of its cells; and in a typical ‘apple-jelly’ nodule one finds that there is thickening of the

epidermis at the sides of the lesion. But at the central part the epidermis is thinned and stretched by the underlying cell exudation; and this it is which gives the nodule its dense translucent appearance—the exudation seen through the thinned and stretched epidermis.

In a nodule which has become scaly or crusted it is found that the exudation is breaking through the epidermis: and in ulcerated lesions it has already broken through and become secondarily infected by pus organisms, as shown by the presence of many polynuclear leucocytes. In a nodule which has become verrucose the epidermic hypertrophy has been sufficient not only to prevent the passage through it of the cell exudation, but to accumulate a horny growth above it.

DIAGNOSIS OF EARLY LUPUS. There is little difficulty in the diagnosis of lupus vulgaris at an *advanced* stage; its origin during childhood, its asymmetrical distribution usually upon the face, its long duration, and the combination of ulceration and scarring with nodular infiltration, are characteristic, when, at this age, there is no question of confusion with the lesions of tertiary syphilis or with rodent ulcer. But difficulties may arise in the case of *early lesions*. An error that may easily be made is to overlook the presence of early lupus—to mistake the significance of the lesions. The patch may be crusted over so as to simulate an impetiginous condition; but the history of many months' duration should always lead to the

suspicion of tuberculosis, and careful examination be made for lupus nodules. When occurring upon the limbs, lupus patches may often be circinate and scaly so that they simulate psoriasis; or they may be warty (lupus verrucosus), and unrecognizable as lupus unless one is familiar with this type of lesion. The long duration and the infiltration of the skin are the guides to a correct diagnosis.

In *multiple lupus* the lesions may be typical apple-jelly nodules, and easily recognized if one is cognizant of the occurrence of this multiple type; or they may be scaly and somewhat resemble psoriasis (hence the term lupus psoriasis); or they may be prominent and warty. The history of sudden eruption and subsequent indolent course, the irregular distribution, and the obvious infiltration are notable features.

TREATMENT OF LUPUS IN CHILDREN. Briefly stated, the aim in the treatment of these cases of early lupus is to remove every trace of the disease with the least possible scarring. The most satisfactory and the most rapid method of cure is by excision. But this is not always practicable; the area may be already too large, or it may be situated in a part where excision cannot be conveniently done, as on the ala of the nose; and moreover objections may be raised to surgical interference under an anaesthetic for an affection apparently so trivial. Besides excision, we have the choice of very many other methods, some of old usage, others of recent introduction. The chief of these methods are (1) local

application of caustics or of irritants, (2) scraping with the sharp spoon, (3) scarification, (4) the actual cautery, (5) application of X-rays, (6) Finsen light treatment, (7) internal administration of thyroid gland substance, (8) injections of tuberculin. In the presence of so many methods it is difficult to know which to adopt unless one has some general plan of procedure. My own custom is (*a*) first of all to endeavour to improve the general health, by keeping the child in the open air as much as possible, by good feeding, and by administration of cod liver oil and iron; (*b*) meanwhile to have the patch painted daily with a saturated solution of potassium permanganate, each time carefully bathing off the black crust which is formed, before painting afresh.

I have many times observed, in children, small patches of lupus disappear spontaneously under improved conditions of health, and I have seen many cases, even with fairly large patches, cured by the daily application of potassium permanganate solution. Other local caustics like salicylic acid plasters, or pure carbolic acid, may be employed, but these are painful, and I have not found that either succeeds where potassium permanganate fails.

(*c*) If under this treatment the patches show improvement at the end of six weeks or two months—the patches paling and flattening—the treatment is continued. If no improvement takes place, the lesion, if small and situated on a covered part, or on a part, as the cheek or neck, where the tissues are lax, is

excised. If too large for excision, or situated where excision is impracticable, it is *scraped* with the sharp spoon; and any nodules that may appear subsequently in the scar are treated by application of potassium permanganate solution; or if they do not yield to this, are again scraped or destroyed by actual cautery.

For the smaller patches of lupus such methods of treatment by local caustics, or, these failing, by excision or by scraping, are eminently satisfactory, provided the treatment be thorough and carefully followed up until every trace of the disease has been removed.

Of the newer methods of treatment that of the *Finsen light* holds the first place. Of the efficacy of this method there can be no doubt; and it has the great advantage that a smooth and supple, and, in many cases, an almost imperceptible scar is produced; while no anæsthetic is required. Where it is available it is the method of choice for lesions upon the face, where even the linear scar of an incision is, if possible, to be avoided, or where excision is contra-indicated by the size or position of the lesion. But, few medical men, and indeed, not many hospitals, are provided with the necessary apparatus, since, except in the larger hospitals, the number of cases coming under treatment does not justify the cost of installation, nor the expenditure of time which the treatment entails.

The method consists in the exposure of the diseased parts to the action of the actinic or chemical rays of

the spectrum—the blue, violet, and ultra-violet rays. The arc lamp, which is rich in these rays, is employed, the heat rays being cut off by means of a current of cold water. In the large Finsen lamp and in the smaller Finsen-Reyn lamp the light is focussed on to the part by means of a series of lenses; while the blood of the tissues exposed, which from its red colour acts as a screen to these rays, is pressed out by means of a glass compressor. In another type of lamp, the Lortet-Genoud, there are no concentrating lenses, but the source of light is brought close up to the water-cooled screen which itself acts as a compressor.

An area not larger than an inch or an inch-and-a-half in diameter can be exposed at one time, and each application occupies from 15 to 30 minutes. The exposure is followed in a few hours by an inflammatory reaction, varying from redness and swelling to actual blistering, which lasts for several days and then subsides. At the end of a week or ten days after the reaction has passed over another sitting is given. A small patch requires from six to fifteen sittings for its complete cure.

The method is, of course, only applicable to parts where firm pressure can be applied, since, if the blood is not pressed out the actinic rays do not penetrate. The original view of Finsen that these rays actually kill the tubercle bacillus in the lesions, just as they do these and other micro-organisms in artificial cultures, is not now held to explain their curative

action: the cure is brought about rather by the repeated congestions which the 'reactions' produce—in a way that is familiar, in the clearing off of various chronic inflammations by the setting up of a more acute process.

The X-Ray Treatment of Lupus. My own experience of the X-ray treatment of lupus is that it is useful in healing up ulcerated surfaces, but that it is not a suitable treatment for unulcerated nodules such as are seen in the early lupus of children; these lesions can only be destroyed by the X-rays by actual production of a dermatitis, and in consequence a scar, and this is, in my opinion, not to be preferred to the scars produced by scraping.

Thyroid Gland Treatment. Marked improvement may occur in advanced cases under this treatment; ulcerated areas often heal rapidly, and lupus tissue even seems to dissolve, though complete disappearance of the disease does not take place. Thyroid gland substance may sometimes be administered with advantage in early cases of lupus, and the treatment often appears to aid in the spontaneous disappearance of the lesions or to help their resolution under local measures. The dose to begin with should be gr. $\frac{1}{2}$ to gr. $1\frac{1}{2}$ of dry thyroid at bed-time, increased to gr. 4 to gr. 5 a day. The case must be carefully watched during the administration.

Tuberculin Injections. The old method of large injections has been entirely abandoned, but some physicians still use the 'old tuberculin', beginning

gradually with very small doses, and apparently with excellent results. Others use the 'new tuberculin', also in small doses. We have lately been taught, however, that it is unscientific and unsafe to administer tuberculin without controlling its action by estimation of the opsonic index. The method of Wright is no doubt of very great use in many cases of extensive lupus, but it is too elaborate at present for routine application, and except from a scientific point of view, to early cases of lupus in children which can be cured by other means.

One of the main points to bear in mind in the treatment of lupus, by whatever method, is to follow up the treatment until the disease is eradicated. If a patient is lost sight of before the cure is completed he will generally apply for treatment some months or years later with the disease spread far beyond its original limits; for, on account of the tediousness of the treatment and the absence of pain, there is often a tendency on the part of the parents to thus relax their attention towards the affection, unless the medical man insists upon their attendance until a complete cure is effected.

SCROFULODERMIA

Scrofuloderma is the term given to the lesions produced by infections of the skin from some underlying tuberculous focus, such as tuberculous glands or bone disease. The term also includes certain subcutaneous abscesses or '*tuberculous gummata*',

which have apparently no direct connexion with deeper tuberculous lesions. The commonest situation of scrofulodermia is in the neck, where such lesions are almost invariably associated with more deeply seated tuberculous glands, with which they communicate by a narrow sinus. They may also be situated over tuberculous lesions in joints or bones, or along the course of lymphatics which drain tuberculous lesions, and which have themselves become infected.

The lesions of scrofulodermia are characterized by their soft and extremely friable nature, as contrasted with the firmer lupus nodule. They may form gelatinous-looking masses covered with thin epidermis, or indolent granulating ulcers, or gummata with central puriform contents and walls lined with soft granulation-like tissue.

There is reason to believe that these lesions are the result of the combined action of the tubercle bacillus and of pyogenic micro-organisms.

The treatment of these affections is surgical rather than in the province of the dermatologist, since they usually depend upon some deep-seated 'surgical' lesion.

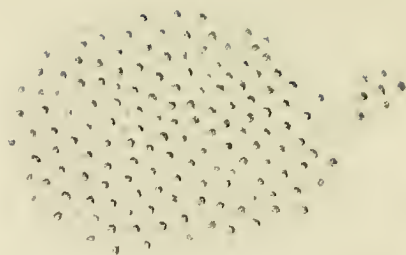
TUBERCULIDES

'Tuberculide' is a convenient term for certain eruptions of the skin which have long been recognized as closely related to tuberculosis, but in which the actual presence in the lesions of the tubercle bacillus has not been satisfactorily demonstrated either by the microscope or by animal inoculation. When first



LICHEN SCROFULOSORUM
SHOWING GROUPING OF FOLLICULAR LESIONS

To face p. 155]



LESION OF LICHEN SCROFULOSORUM
(NATURAL SIZE)

introduced the term was intended to be analogous with 'syphilide', and to indicate that these eruptions were due, not to the actual presence of the tubercle bacillus in the lesions, but to the toxins produced by its growth elsewhere. Subsequent research, however, tends to suggest that, in some, at any rate, of these eruptions, the tubercle bacillus may be present in the lesions in an attenuated state.

The following affections belong to this group:—Lichen scrofulosorum, acne scrofulosorum, erythema induratum (Bazin's disease); and some observers would include also lupus erythematosus, and certain forms of 'eczema'.

LICHEN SCROFULOSORUM

This eruption was first described by Hebra as a cutaneous affection occurring 'in persons of scrofulous habit'. Hebra met with the affection only in males between the ages of fifteen and twenty-five years; it is now known to occur in children, and perhaps even more commonly than in adults. The eruption is characteristic: it consists of very small (pin-head sized) papules, pale yellow to reddish-brown in colour, always arranged in groups; each papule is situated at a hair follicle, so that they are evenly spaced over the patch. These groups or patches of follicular papules may vary in size from a few papules to a patch measuring from an inch to two or three inches in diameter. They are seen chiefly upon the trunk, and less often upon the limbs. The eruption is indo-

lent, the papules remaining for a long time (months or perhaps years) without change, and eventually disappearing by desquamation, leaving behind pigmented spots. Occasionally the papules may present a horny projecting spine, as in the somewhat rare eruption known as lichen spinulosus. The lesions do not give rise to itching. Not infrequently the eruption of lichen scrofulosorum is associated with that of acne scrofulosorum.

Writers differ as to their estimate of the frequency of the occurrence of this eruption. It is, possibly, often overlooked on account of its total absence of subjective symptoms. It is seen usually in children who are ill-nourished, with narrow or flattened chests and projecting scapulæ, often with actual tuberculous lesions in the form of enlarged glands, scrofuloderma, or caries of bone. It has been met with in association with pleuritic effusions. Occasionally the child affected may be tolerably well nourished and apparently free from tuberculous lesions.

ETIOLOGY AND PATHOLOGY. This eruption has always been regarded as in some way related to tuberculosis; first as a 'scrofulous' manifestation; now as belonging to the group of 'tuberculides'. It is still a disputed point whether it is the result of the action of tuberculous toxins, or of the local presence of tubercle bacilli, perhaps in an attenuated form. Tubercle bacilli have been found by two observers (Jacobi, Wolff), but sparsely; and Jacobi and Pellizzarri have obtained positive results from animal

inoculations. Others have observed local reaction with tuberculin. Giant-cells are found in the lesions.

DIAGNOSIS. The eruption of lichen scrofulosorum, although so characteristic, is closely simulated by other eruptions, so that the diagnosis may sometimes be difficult. There is a *small follicular syphilide* with grouped papules, but this is rare in any case, and of course hardly to be considered in childhood. Then, the somewhat rare affection *lichen spinulosus* may be very difficult to distinguish, since it occurs particularly in ill-nourished children; the absence of tuberculous manifestations, and the greater tendency for lichen spinulosus to occur on the limbs, and the less inflammatory and more spiny lesions, would be in favour of this affection. They may also be confused with the chronic circumscribed patches of dermatitis such as I have referred to on page 130, where I have already briefly discussed this question of diagnosis.

TREATMENT. Hebra recommended cod-liver oil both internally and externally. The former may always be prescribed in these cases with benefit. The external method as described by Hebra—the oil was to be in constant contact day and night beneath an unabsorbent material, as wool or flannel—is perhaps unnecessarily disagreeable, though effective. Personally I have found that a simple ointment as follows will clear off the eruption:—

R \bar{x} Acid. Salicyl.	.	.	gr. x
Lanolin.	.	.	℥ ij ss
Ol. Amygd.	.	.	℥ ij ss
Aq. Rosac	.	.	℥ iij

Generally the more important part of the treatment is that of the general condition.

ACNE SCROFULOSORUM

This is also an eruption occurring in tuberculous or in supposed tuberculous subjects. It is of somewhat rare occurrence, though commoner perhaps among hospital patients than in better-class patients ; it is of interest and importance on account of its probable relationship with tuberculosis.

The eruption differs from that of lichen scrofulosorum in the size, and in the manner of distribution, of its lesions. These begin as isolated pin-head sized to hemp-seed sized nodules situated in the derma. They soon reach the surface and become dusky red firm indolent papules. The papules have a tendency to central pustulation, or to central softening without apparent pustulation, by which an adherent crust or a tiny crateriform ulcer is formed. The lesions disappear after a time with more or less scarring and pigmentation. The evolution of each nodule occupies a few weeks, and by their successive appearance lesions at all stages may be present at one time. They may appear upon any part, but, in contrast with lichen scrofulosorum, they have a special predilection for the extremities, and they are frequently most abundant upon the buttocks, thighs, and legs. They may co-exist with the lesions of lichen scrofulosorum, and larger lesions like those of erythema induratum are sometimes present upon the



ACNE SCROFULOSORUM

SHOWING INDOLENT, DUSKY-RED PAPULES, AND DARK STAINS AT
THE SEAT OF LESIONS WHICH HAVE NECROSED OR RESOLVED

legs. In many cases the circulation is poor, as shown by coldness and blueness of the extremities. The eruption is frequently, too, associated with definite tuberculous lesions, such as tuberculous glands or bone affections. A corneal affection—the so-called strumous keratitis—is not at all uncommon. The eruption may, if the case be untreated, last for years. It often subsides in the summer and breaks out again in the winter. In regard to the term ‘acne’ it may be noted that, although lesions may occur around the hair follicles, this is not essential, and frequently they have no relation to the follicles. The lesions have a tendency to disappear spontaneously with improvement in the general health, and to return if the state of health is lowered.

ETIOLOGY AND PATHOLOGY. There is abundant clinical evidence that this eruption is closely related to tuberculosis, although, as in the case of lichen scrofulosorum, it is still uncertain whether it is due to the action of toxins or to the actual presence of the tubercle bacillus in the lesions. At the present time it is classed with the small nodular ‘tuberculides’. This particular type of nodular tuberculide, as it occurs in infants and in young children, has attracted special attention in London, where it has been known and discussed, and recognized as of ‘scrofulous’ or tuberculous nature during the last twenty years.

Tubercle bacilli have not been found in the lesions of acne scrofulosorum, nor have successful inoculations been made in animals from material from these cases.

Histologically, the lesions show a circumscribed infiltration of small round cells, epithelioid cells and occasional giant-cells; the infiltration may be seated around a hair-follicle or in the neighbourhood of a sweat-gland and duct, or it may be independent of either.

DIAGNOSIS. The presence of the scattered isolated dusky nodules, sometimes on the forearms and hands, but especially about the buttocks and thighs, and on the legs, in a tuberculous subject or in a patient with feeble circulation, at once suggests tuberculides. There should be no difficulty in distinguishing them from the old infiltrated lesions of ecthyma, by the presence of other impetiginous lesions, and by the larger size of the ecthymatous lesions and greater amount of crusting (p. 107). They may be mistaken for multiple lupus, though the 'apple-jelly' appearance of the nodules, the absence of tendency to central pustulation, and the greater chronicity of the individual lesions of the latter, should make the distinction easy to one familiar with both eruptions.

TREATMENT. Here, again, the usual methods of improving the health employed in cases of tuberculosis, such as fresh air, liberal diet, administration of cod-liver oil, &c., are to be employed. Locally it is useful to apply some mild antiparasitic ointment, such as boracic acid ointment, or resorcin (gr. x to $\bar{3}$ i), with a view to softening the crusts and controlling suppuration.

ERYTHEMA INDURATUM

This affection is characterized by deeply-seated, painless, indolent nodules occurring generally upon the legs, and especially upon the calves. The nodules are from $\frac{1}{4}$ inch to 1 inch or more in diameter, and may be situated deeply or superficially ; when deeply situated, they are more easily felt than seen ; when superficial, the epidermis over them is often dusky red in colour. These nodules may be either slowly absorbed, especially under appropriate treatment, or they may break down into indolent punched-out ulcers which leave scars. This eruption generally occurs in girls or young women, usually with poor circulation, and in those accustomed to much standing, as young servant girls—sometimes there are tuberculous manifestations, such as lupus, scrofulous glands, &c. Erythema induratum is seldom seen in children, but its relationship with acne scrofulosorum entitles it to a short mention here as an example of a tuberculide.

Lupus Erythematosus. Lupus Erythematosus, although now regarded by nearly all observers as a distinct disease from Lupus Vulgaris, is thought by some to be a form of 'Tuberculide'. It is, however, of so extremely rare occurrence below young adult life that it need not be considered here.

ON THE ASSOCIATION WITH TUBERCULOSIS OF OTHER
MICROBIC INFECTIONS

The local reaction of the tissues to the tubercle bacillus may be augmented by inflammation excited

by the presence of other organisms; for example, the pustulation which occurs in cases of ulcerating lupus is probably due partly, or wholly, to the presence of staphylococci in the lesions; and, again, the lesions known as scrofulodermata are also by many considered to be the result of the combined action of the tubercle bacillus and the staphylococcus aureus. Lupus vulgaris, as is well known, may be accompanied by swelling of the upper lip, or more rarely, of some other part affected by the lupus. This thickening or swelling (elephantiasis) is now believed to be the result of repeated attacks of cellulitis due to the invasion of the streptococcus.

Apart from these local combinations of staphylococci or streptococci with tubercle, cases of acute tuberculosis are occasionally reported in which there is a generalized erythema or purpura, the latter resulting, not from the tuberculosis, but from some added microbic infection, and, though a rare event, the possibility of the presence of tubercle should be borne in mind in cases of purpura.

Other affections of the skin which occur sometimes in association with tuberculosis are dermatitis gangrænosa infantum and generalized exfoliative dermatitis, which are affections possibly of microbic or of toxic origin. Here it is probable that either the tissue resistance to one organism is lowered by the presence of the other, or that some other factor has lowered the body resistance to both.

CHAPTER IX

AFFECTIONS OF TOXIC ORIGIN, OR DUE TO GENERAL MICROBIC INFECTION

THE part played by toxins in the production of cutaneous eruptions is undoubtedly one of considerable importance. Our knowledge of toxins and of their relationship to skin affections, although gradually being enlarged by new observations in chemical pathology and in bacteriology, is, however, at present very imperfect. From the little we already know it seems probable that toxins will be found to be the immediate cause of a very large number of skin diseases. There are many important diseases, such as eczema, psoriasis, alopecia, pemphigus, dermatitis herpetiformis, lichen planus, lupus erythematosus, &c., in which it is suspected that toxins are important etiological factors; though our views as to the nature of these toxins or how they act are as yet to a large extent hypothetical. At the present time any definite knowledge of skin affections as the result of toxic action is almost confined to clinical observations of certain eruptions of *erythematous*, *purpuric*, and *urticarial* type which are found to arise in association with the ingestion of certain drugs or foods, with serum injections or with microbic infections.

TOXIC AND INFECTIVE ERYTHEMAS AND PURPURAS,
AND URTICARIA

It has long been known that various forms of erythematous eruption, purpuric eruptions and urticarial eruptions may be associated with certain infective and toxic conditions. Familiar examples are the eruptions of the specific fevers; erythemas and purpuras occurring with supposed rheumatic symptoms; and erythemas, urticarias, and purpuras dependent upon gastro-intestinal disturbances, or upon the ingestion of tainted foods, or following the administration of certain drugs.

But apart from these so-called 'symptomatic' eruptions there are met with others very similar in character, which, so far as clinical evidence goes, are unassociated with any known toxæmia or infection. These have been styled 'idiopathic', and they have been grouped according to their manner of evolution, their course and character, and labelled as clinical entities. Such are the affections known as erythema multiforme, erythema nodosum, peliosis rheumatica, purpura simplex, purpura hæmorrhagica, &c. Bacteriological investigations, however, have made known to us that many of these 'idiopathic' erythemas and purpuras are due to various microbic infections; and we have learnt that similar eruptions may be produced by such agents as diphtheria antitoxin, or tuberculin, or by organic or inorganic compounds in the shape of drugs, or possibly even as the result of auto-intoxi-

cations. There is a tendency, therefore, to look less strictly upon these different clinical types as representing distinct diseases, and to view them rather as symptomatic of diverse infective or toxic processes, although in many cases the toxic or infective agent is still unknown. Even those erythemas and purpuras which, on account of their association with joint pains or swellings, have been regarded as 'rheumatic', lose their specific character now that it is recognized that a rheumatic condition may be a manifestation of various toxic processes or infections, and they become, instead, merely one symptom of the particular toxic or infective process which is also responsible for the joint pains or swellings.

The toxic agent concerned in the production of these eruptions may be a drug administered internally, or it may be contained in a therapeutic serum; or it may be the result of gastro-intestinal fermentations, or derived from a vitiated food; or possibly auto-intoxication may occur by products due to imperfect metabolism; or, most important of all, the toxins may have been manufactured by organisms by which the patient has become infected. From numerous researches it seems probable that when a microbial infection is concerned in the causation of the infective erythemas and purpuras it is most frequently a streptococcus. A not uncommon association is with a streptococcic angina. Even when these eruptions occur in the course of diphtheria, of typhoid fever, of pneumonia, or of tuberculosis, they may be due to

a super-added streptococcic infection. There is recently, however, a growing opinion that other organisms, notably the pneumococcus, the bacillus coli, the staphylococcus, and the bacillus pyocyaneus, may of themselves be responsible for eruptions of this class.

The manner in which toxins produce cutaneous eruptions is disputed, but the most generally accepted theory is that they act upon the vaso-motor mechanism locally, or possibly centrally.

THE TOXIC AND INFECTIVE ERYTHEMAS

An erythematous rash may be produced by purely local causes, such as the application of liniments or of a mustard plaster, the action of heat (erythema solare, erythema ab igne), or of cold (erythema pernio or chilblain), or by irritation of local discharges as in some erythemas of the buttocks in infants; or it may be a stage in a purely local inflammatory condition, eczema, impetigo, &c.; and it occurs as a temporary erythema (or 'blushing') as the result of reflex nervous action. With these forms of erythema we are not here concerned. The eruptions which are now to be studied depend, not upon local conditions, but upon the circulation of some poison in the blood. The study of these eruptions in children is of especial importance, because they not only bear a close analogy with the eruptions of the specific fevers, but they so often have to be diagnosed from these exanthems.

From a clinical standpoint the toxic or infectious erythema may be grouped into the following types:—

- (1) Roseola or rose rash.
- (2) Morbilliform erythemas.
- (3) Scarlatiniform erythemas.
- (4) Erythema exudativum or E. multiforme.
- (5) Erythema nodosum.

1. **Roseola or rose rash.** There is often met with in children, and especially in babies, a mild and fugitive form of erythema in which the colour is faint and the eruption evanescent. Such eruptions may be general or partial, and in the form of pale red macules or in rings. Usually they are of little importance, and denote some slight digestive disturbance; or they may occur, not uncommonly, after the administration of enemata. Fugitive eruptions of this sort may be seen, too, in the course of various febrile affections—small-pox, diphtheria, rheumatic fever, cholera, &c., and also as a sequela of vaccination.

2. **Morbilliform erythema.** An eruption resembling that of measles, viz. a mottling of more or less semi-lunar or crescentic patches of dull red colour, may be met with as the result of the action of various drugs given internally (notably of antipyrin), sometimes in connexion with acute angina, or in the course of diphtheria, or from the injection of diphtheria anti-toxin. All these eruptions are interesting in regard to their relationship to toxic bodies circulating in the blood: clinically, their chief importance lies in the fact that there may often be difficulty in

distinguishing such an eruption from that of measles or of rubeola. In *Measles* one looks for oculo-nasal catarrh, laryngeal troubles, bronchitis, Koplik's sign (eruption in the mouth); the eruption seen early upon the forehead or behind the ears, and eventually covering the face, trunk and limbs; also the relation of the eruption in point of time to the onset of the illness (fourth day); and evidence of contagion twelve to fourteen days previously. In favour of drugs or other toxins are the fact of previous administration and often a less generalized eruption. The diagnosis from *Rubeola* or R  theln may present considerable difficulty: one is guided by the presence of sore throat and gland enlargements,—although it must be remembered that a simple morbilliform erythema may be associated with a sore throat, sometimes with previous shivering and lumbar pains and slight fever,—and by the occurrence of other cases. The rash of rubeola is less purple and more rose than that of measles and less marked upon the face, and it appears within thirty-six hours of the onset of symptoms.

3. **Searlatiniform erythema**, so called because it resembles that of scarlet fever, is brighter red than the previous type and in large areas made up of very minute, red, closely-set points (punctate). Like the morbilliform rash it occurs under many and various conditions: it may be produced by a multitude of drugs (belladonna, quinine, salicylates, &c.); by enemata; by diphtheria anti-toxin, by tuberculin, or by small-pox vaccine; in the course of diphtheria,

of small-pox, &c.; from septic infections, streptococcic, pneumococcic, gonococcic, &c. In making a diagnosis, in *Scarlet fever* there would be the eruption often first upon the sides of the neck and upper part of the chest, upon the forehead and cheeks, leaving the mouth and chin strikingly pale by contrast, often very marked upon the abdomen and inner surface of the thighs; the strawberry tongue; the sore throat; the fever and the appearance of eruption twenty-four hours or less after the occurrence of the first symptoms. The earliest symptom is frequently vomiting or diarrhoea. It must be remembered that neither subsequent desquamation nor the appearance of albumen in the urine is peculiar to scarlet fever, as both may occur with scarlatiniform erythemata.

4. **The exudative erythemas** are characterized by lesions raised above the surrounding surface, generally of a dusky red colour, and of various shapes and sizes. The varied aspects have given rise to terms such as erythema papulatum, erythema tuberculatum, erythema annulare, erythema iris; all of which for the older writers represented distinct affections. It was recognized by Hebra that all of these forms of erythema were merely different stages in the same process, and he included them all under the term *erythema exudativum multiforme*. He showed that they all had certain features in common, of evolution of course, and of distribution, and he regarded them as constituting a special and distinct disease. The truth of Hebra's clinical observations was recognized,

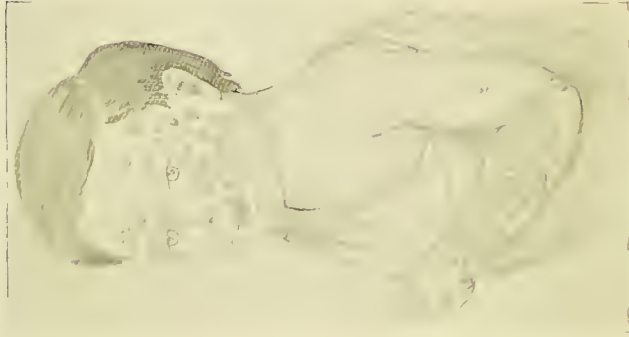
and the title erythema multiforme became universally adopted; but soon many observers began to find that these eruptions occurred not infrequently with febrile symptoms, and with joint pains, or even joint swellings, and an association with rheumatism was suggested, and the question of the 'rheumatic' nature of these eruptions has been the subject of much discussion. At the present time an even wider view is gaining ground, namely, that the eruptions known as erythema multiforme are symptomatic of various kinds of blood poisoning, a view which would thrust erythema multiforme from the position it has so long held as a definite disease into a more humble place as a symptom or group of symptoms.

There is another aspect to the question, however, namely, that there may be a disease entitled to the term erythema multiforme, and that the eruption seen in this disease may be simulated by the eruptions caused by various toxins.

Without committing myself to either view, I shall first of all describe the clinical features of erythema multiforme and then briefly discuss its etiology.

ERYTHEMA MULTIFORME

Erythema multiforme may occur at all ages. It is said to be most common during young adult life, but it is frequently seen in children. One of the most striking features of the eruption is its distribution; it is probably always present upon the backs of the hands, and often also on the dorsal surfaces of the feet;



ERYTHEMA MULTIFORME

From drawing kindly lent by Dr. T. Colcott Fox



ERYTHEMA AFTER VACCINATION

From drawing kindly lent by Dr. T. Colcott Fox

in more extensive cases it comes out upon the fore-arms and legs, sometimes upon the arms and thighs, and upon the face and trunk ; but even then it is most marked upon the hands, where, too, it generally first makes its appearance (Pl. VIII). The eruption consists of flattened papules or tubercles, in the form of variously sized raised sharply circumscribed patches, of a bluish or dusky red colour, which may be few in number, or closely distributed over the areas affected. The dusky red patches may last for a few days and then fade without leaving a trace, or they may enlarge at the margin while they fade in the centre, giving rise to ringed lesions. By the coalescing of adjacent rings gyrate figures may be produced.

Exceptionally, the lesions become vesicular or bullous (erythema bullosum). Very rarely hæmorrhage may take place into the lesions, either into the maculo-papular lesions or into bullæ. A striking and not very uncommon type of lesion is that known as *herpes iris* or *erythema iris*. Here, a vesicle or bulla is formed, which, fading at the centre, produces a ringed vesicle; a new papule or vesicle arises in the centre so that a target-like lesion is produced.

After a time varying from several days to a week or two the lesions fade and fresh ones cease to appear. In many cases, beyond the rash, no other marked symptoms are present, though there may be a little burning or itching when the eruption first comes out. In some instances, however, and more especially in children, there are febrile symptoms, headache, malaise,

gastric disturbance, rise of temperature, and pains in the joints. There may even be swelling of the joints from effusion.

In the vesicular and bullous forms there are often lesions in the mouth in the form of excoriated patches, representing ruptured vesicles or bullæ. Mouth lesions are not so common in the papular forms.

There is a great tendency for the eruption to recur ; this may happen a few months later, or it may be postponed, patients often having an attack periodically at a certain time of the year for several years. Sometimes, owing to recurrences at short intervals, the affection may be apparently prolonged over long periods.

In the majority of cases erythema multiforme is a mild affection,—or if we regard it as a symptom we may say that it is usually associated with a mild form of toxæmia,—and the prognosis is favourable. But in exceptional cases the eruption may be associated with a more serious form of toxæmia, and there may be symptoms of visceral disease, such as endocarditis—then of course the prognosis depends upon the gravity of the visceral affections.

THE ETIOLOGY AND PATHOLOGY OF ERYTHEMA MULTIFORME. As I have already stated, we are in doubt as to the nature of erythema multiforme. There are certain reasons for regarding it as an independent malady in the majority of cases ; its mild and uniform course, beginning with slight general disturbance of health and disappearing after a few weeks without

any complications or sequelæ; its tendency to recur at the same season of the year; the absence in most cases of any known source of toxæmia; its occasional appearance in small epidemics; suggest that it may be a morbid entity having a common but as yet undiscovered cause. On the other hand, in many instances, eruptions, indistinguishable from those of the common, apparently idiopathic erythema multiforme, follow the ingestion of drugs, occur in association with local septic infections, anginas, and middle ear disease, with vaccination, with diphtheria, cholera, pneumonia, and other sources of toxæmia. Many cases too have been reported in which micro-organisms of various forms have been found in the blood. When bacteriological investigations have been made the streptococcus has been the organism most often found in these cases, though other micro-organisms have been reported and incriminated.

ERYTHEMA NODOSUM

This is an affection of somewhat frequent occurrence in childhood. The characteristic lesions, the painful red oval swellings or nodes situated along the shins, are well known. From a few to twenty or more lesions may be present. Sometimes, and especially in children, there may be similar nodes also upon the arms. The lesions, at first red, tender and painful, afterwards become yellowish red, and then purple and greenish yellow, then fade altogether, meanwhile gradually losing their pain and tenderness. The

onset and course of the affection is acute. At the beginning there may be shivering, with pain and even swelling of the joints, and some cases are preceded by a sore throat. The eruption lasts two or three weeks; but relapses may occur so that the affection may continue for months. There is generally, at any rate at the beginning, a slight elevation of temperature. Nephritis has been recorded in a few cases, and so has endocarditis; though implication of the heart is, I think, rare. In a large number of cases carefully examined I have never detected any sign of valve trouble.

From the acute, uniform course of the affection many regard it as an infectious disease, a morbid infectious entity. But neither its infectivity nor its specificity has yet been established. There is, of course, the question of its relationship to rheumatic fever. Many hold that it is so related, others deny it. Some regard erythema nodosum, not as a disease, but as a symptom of various infections. The eruption has been reported as occurring in the course of various infectious diseases, as diphtheria, syphilis, cholera, &c., and as a consequence of poisoning by bromides and by other drugs. But these examples possibly merely show that the eruption may be simulated. One point is worthy of mention; erythema nodosum, unlike erythema multiforme, does not tend to recur.

TREATMENT OF TOXIC AND INFECTIVE ERYTHEMAS. Obviously the rational treatment of these eruptions is that which is directed towards removal of

the toxin which produces them. If it be discovered that they depend upon the ingestion of a particular drug or of a particular food the avoidance of these will prevent a recurrence of the eruption. Auto-intoxication from the stomach or intestines possibly accounts for many of these eruptions, so that particular attention must be paid to diet and to the action of the bowels. Possible local sources of infection such as tonsillitis, otitis, stomatitis, must be looked for and appropriately treated. When symptomatic of obviously severe microbic infections, bacteriological examination of the blood may reveal a streptococcic infection and necessitate serum injections.

As to the administration of drugs in these cases, it may be said that in all, from the mildest toxæmias to virulent infections, purgatives are indicated. A considerable dose of calomel or of grey powder will often abort a septic angina with which an infective erythema may be associated. Under ordinary circumstances, when these eruptions seem to form the most prominent part of the affection, saline purgatives alone are often sufficient to remove the eruption. In cases of erythema multiforme and erythema nodosum the salicylates or salicin are useful, especially where joint swellings and pains are present. Patients with erythema nodosum should always be kept in bed, as the dependent position aggravates the pain and delays the evolution of the lesions.

Locally, since these eruptions—with the exception of erythema nodosum, which may be painful—usually

give rise to no marked discomfort nor itching, little or no treatment is required. Lot. calaminæ, weak lead lotion, lotions containing ichthyol or small proportions of sulphur, are all locally astringent, and are applications that may be used. When the lesions of erythema nodosum are painful a cradle may be used, and a lead and opium lotion applied.

PURPURA

Purpura is the term used to denote the characteristic lesions produced by hæmorrhages into the skin. It should not be regarded as a disease but as a symptom, though as one which has a special and important significance as indicating generally an illness dependent upon or associated with some form of blood poisoning.

At the present time the opinion is rapidly gaining ground that most, if not all, purpuric eruptions are the result of the circulation in the blood of some toxin which, in many instances, is due to microbic infection, in others to a poison introduced into the system, or produced in the gastro-intestinal canal, or possibly sometimes to auto-intoxication.

As with the erythemas, purpuras were formerly divided into: symptomatic, or those which accompanied some known illness, as rheumatic fever or scarlet fever; and idiopathic, or those which were supposed to be independent diseases. Again, as with the erythemas, many clinical types have been described and named as separate entities—purpura simplex, peliosis

rheumatica, purpura hæmorrhagica, &c. But with the purpuras, too, the discovery that many of these eruptions are associated with microbic infections or with other forms of blood-poisoning, has led to the tendency to regard them all as symptomatic, and to the endeavour to classify them upon an etiological basis, rather than according to their clinical features. A classification upon an etiological basis is, however, with our present knowledge, almost impossible, and it is more convenient to keep to the old clinical groupings.

Before discussing these various clinical types it may be well to briefly recall the characters of the lesions of purpura, and to consider from a general point of view their pathology and etiology.

THE LESIONS OF PURPURIC ERUPTIONS form red or purple sharply circumscribed areas which do not disappear on pressure; the smaller patches are called *petechiæ*, the larger bruise-like areas, *ecchymoses*. Petechiæ are usually flat and level with the surrounding skin, while ecchymoses are more or less raised swellings. The lesions are formed rapidly, and disappear gradually, passing, as they fade, through changes of colour from purple to yellow. Exceptionally the epidermis may be raised to form *hæmorrhagic bullæ*. The skin lesions may be accompanied by patches on mucous membranes or by hæmorrhages from mucous membranes, epistaxis, hæmatemesis, &c., or hæmorrhages into the substance of the viscera.

ETIOLOGY AND PATHOLOGY OF PURPURIC ERUPTIONS. The lesions of purpura are produced by an escape of blood into the tissues. This occurs more especially in the neighbourhood of the superficial vascular plexus. Vessels are found dilated and distended with red blood-cells, while there are also red blood-cells infiltrating the tissues around them. The actual mechanism of the escape of blood into the tissues in purpuric lesions is not definitely known. That the vessels in the normal skin are not easily ruptured by mechanical injuries is probably due to their high tonicity and to the very sensitive vasomotor apparatus; and only very sudden injuries, such as a pinch, or long continued mechanical suction, such as occurs in the process of dry cupping, will produce hæmorrhage in a normal skin. For this reason it was formerly taught that cutaneous hæmorrhages were usually due to conditions which led to passage of the blood through the vessel walls by diapedesis. Microscopical examinations, however, have shown that there is in many, if not in most instances, actual rupture of the vessel walls, and this recognized fact has now taken the place of the theory of diapedesis. But the cause of the rupture of vessel walls is still in dispute; many observers have sought for some diseased condition of the walls as a preliminary to rupture; others have explained the vessel wall ruptures as the result of thrombosis or embolism, the embolism in many instances consisting of an accumulation of micro-organisms; yet a third explanation is that a paralytic

distension, followed by rupture, occurs as the result of the action of toxic bodies upon the nerve centres or locally.

But none of these suggested causes satisfactorily explain the occurrence of the rupture of the vessel walls; for disease of vessel walls, microbic embolisms, and toxic vascular dilatations may each occur without the production of hæmorrhages. Possibly the combination of two factors is required, one leading to damage of the vessel walls, another causing dilatation of the vessels.

Whatever the true explanation of the mechanism of the production of purpuric lesions, the view that an essential factor is the presence of toxins circulating in the blood is that which is best supported by clinical facts. First, there is the whole series of cases which occur in association with the specific infective fevers; then, the numerous instances, daily being added to, in which a general microbic infection has been demonstrated; then, purpuras as the result of drug administration; in Bright's disease and in jaundice, both conditions in which toxins are known to be circulating in the blood; sometimes purpuric eruptions have appeared after extreme physical exertion and the possibility of these cases being due to auto-intoxication by products of excessive muscular mechanism has been suggested. As regards the bacterial origin of purpuras, all sorts of bacteria have been found, sometimes in the blood, sometimes in the lesions only. The micro-organism most frequently reported is perhaps a strepto-

coccus. But staphylococcus, bacillus coli, bacillus pyocyaneus, Weichselbaum's diplococcus, pneumococcus, and other unclassified bacilli have also been demonstrated—sometimes more than one form. It seems probable that in many instances it is not the bacterial infection alone which is responsible, but that there is some predisposing cause, possibly leading to malnutrition or to damage of the vessels—for example, as predisposing conditions, scorbutus, liver or kidney troubles, drug-poisoning (potassium iodide), to which is added a microbic infection. In cases of variola and of scarlet fever which have been accompanied or followed by purpura, streptococci or staphylococci have been found in the blood, so that here again a predisposing damage to the vessels by the illness, followed by an independent microbic infection, suggests itself. Again, in cases of general tuberculosis,—a very important predisposing cause of purpura,—purpuric eruptions have been found associated with streptococcic infections.

THE CLINICAL TYPES OF PURPURA. From a clinical standpoint purpuras may be divided into : (1) the milder forms, including those associated with rheumatic pains (*peliosis rheumatica*), and those in which generally small cutaneous hæmorrhages appear to constitute the whole disease (*purpura simplex*); and (2) the more severe forms, associated with hæmorrhages from mucous membranes (*purpura hæmorrhagica* of Werlhoff), or with severe colicky abdominal pains (Henoch's *purpura*), or with high fever, and

perhaps diarrhœa, indicating vascular bacterial infections (*purpura febrilis*); or again, the very rapidly fatal cases (*purpura fulminans*); (3) all those cases in which the purpuric lesions accompany some definite disease as scorbutus, hæmophilia, tuberculosis. Although it may sometimes be impossible to draw a hard and fast line between the milder and the more severe cases, and although the purpura which may accompany well-known diseases is possibly of the same nature as the independent purpuras, it is convenient for clinical study to break them up into the groups that have been indicated.

Purpura simplex. Cases in which hæmorrhages occur only into the skin and not from mucous membranes have been called purpura simplex. Although there is certainly a class of case in which petechiæ in the skin appear to be almost the only symptom, and which are benign and have no serious complications, yet this must be regarded solely as a convenient clinical grouping. It is sometimes impossible to draw a hard and fast line between these simple cases and the more severe, and a case which begins benignly may afterwards develop serious symptoms.

Purpura simplex occurs particularly in children, and generally between the ages of eight and twelve years. The eruption comes suddenly, but fresh lesions may continue to appear from time to time. It is usually most abundant upon the legs, though not limited to these parts. It consists of petechiæ, few or many, and of sizes varying from a few lines to half an

inch or so in diameter. There is no rise of temperature, but there may be some loss of appetite and general malaise. Under favourable conditions of rest in bed and good food, these patients usually rapidly recover; though the lesions may again appear upon the legs upon first getting up. In other cases the lesions may continue to come out during weeks or months, or relapses may occur after a variable period. Similar petechial eruptions may be seen in younger children who are anæmic and rickety, and who have, often, enlarged spleens.

The causation of these mild forms of purpuric eruption is not clear. They occur most often in children who are placed in unfavourable surroundings and who are ill fed. From analogy with other purpuras it seems probable that they are of toxic origin, though the nature of this toxin is unknown. The prognosis is, as a rule, altogether favourable, but it must not be forgotten that many of the more severe cases begin first of all as 'simple purpuras'.

Purpura hæmorrhagica (*morbis maculosus* of Werlhoff). Cases in which in addition to the skin lesions there occur also hæmorrhages from mucous membranes, are called *purpura hæmorrhagica*. They differ only from *purpura simplex* in the degree of severity; and intermediate cases are frequently met with.

Purpura hæmorrhagica may begin with a petechial eruption; or a hæmorrhage such as epistaxis, or hæmatemesis may be the first symptom. Sometimes general

symptoms precede the hæmorrhages for some days; headache, loss of appetite, debility. The skin lesions, as in purpura simplex, generally begin upon the legs and remain most abundant here, though they may ultimately affect all parts. The patches may be of all sizes and there may be subcutaneous hæmorrhages producing large swellings covered by normal skin, or bruise-like lesions involving the skin. There may exceptionally be hæmorrhagic bullæ. There are generally also hæmorrhages on the mucous membranes of the lips, mouth, and pharynx. The least injury, as a prick with a hypodermic needle, may lead to petechial patches or ecchymoses. In addition to the skin-lesions are the more serious hæmorrhages from mucous membranes which are characteristic of this group. Epistaxis, hæmatemesis, and bleeding from the bowel may often be profuse, so that the patient becomes rapidly anæmic. Death may occur; but in spite of these severe symptoms the patient often recovers.

The temperature is usually not raised, at any rate to a marked degree. Pains in the joints or swelling are absent in this class of case.

Purpura rheumatica (Schönlein's disease). The cases grouped under this title differ from cases of purpura simplex in that the eruption is accompanied by joint-pains or even by joint-swellings. The hæmorrhages into the skin have a roughly symmetrical distribution on the legs and feet, and arms and hands, occurring sometimes also upon the trunk. Unlike the lesions

of purpura simplex these may be raised by exudation as in the lesions of erythema multiforme. Joint-pains, malaise and gastric disturbance, may sometimes precede the skin eruptions. Occasionally there may be wheals, and swelling of the wrists and ankles, and of dorsal surfaces of hands and feet. The prognosis in these 'rheumatic' cases is usually favourable unless complicated by the presence of visceral hæmorrhages or by ulcerative endocarditis. In these cases there may be considerable rise of temperature. A noteworthy feature is the tendency to relapse after months or years as with erythema multiforme. Whether this clinical type corresponds to any particular form of toxæmia is not known; that it has any relation to acute rheumatism is improbable. Endocarditis does not occur except in those severe cases associated with 'ulcerative endocarditis'.

Henoch's purpura. This is a form of purpura observed chiefly in children, closely related to the 'rheumatic purpuras', but in which, in addition to the skin-lesions and the joint-pains or swellings, there are severe colicky pains and abdominal tenderness with vomiting, and intestinal hæmorrhage with bloody motions. The pains and other abdominal symptoms generally last for a few days, and then perhaps recur, again and again, at a few days' interval, for weeks. There may be fever, but usually not to a high degree. In most cases recovery takes place, but recurrences are not uncommon. It is supposed that the severe gastro-intestinal symptoms are due to hæmorrhages

into the walls of the intestine. Cases have been reported in which intussusception has occurred.

Purpura fulminans. Yet another form of purpura—a rare type—was described by Henoch in which there occurred extensive hæmorrhage into the skin, without mucous-membrane hæmorrhages, but with rapid death in a few hours. Other examples have been reported. A series of cases reported by Graham Little of rapidly fatal purpura in infants, in which hæmorrhages into the suprarenal capsules were found post mortem, possibly belong to this group. Rise of temperature seems to be characteristic of these rapidly-fatal cases, and the clinical course, supported to some extent by bacteriological examination, points to a virulent microbial infection.

DIAGNOSIS. The recognition of the eruption of purpura presents as a rule no difficulties. There is, indeed, one condition which, unless careful examination be made, may be easily mistaken for purpura; ordinary flea-bites may in some children give rise to lesions of a petechial character. The possibility must be borne in mind, however, that such lesions may indicate a vulnerability of the skin owing to the presence of a 'purpuric condition'.

The point of chief importance in the presence of a case of purpura is to determine, if possible, its associations. Inquiry must be made as to the occurrence of previous illnesses, the administration of drugs, the ingestion of food likely to have been unwholesome; the question of scorbutus must be carefully

considered; the heart must be examined carefully for evidence of endocarditis; and any indication of tuberculosis must be sought for. Where possible, especially in severe cases, cultures should be made from the blood to determine the presence of micro-organisms. Rise of temperature suggests always some microbic infection.

TREATMENT OF PURPURA. Rest in bed is of the first importance; many of the milder cases recover without treatment, but, as it is never possible to be quite sure that a case is going to be a mild one, it is best to begin the treatment by putting the patient to bed: in the more severe cases rest in bed is essential. Many drugs have from time to time been extolled as valuable in controlling hæmorrhages. In the milder cases arsenic is, I think, often most useful. When hæmorrhages occur from mucous membranes, turpentine is one of the most efficient hæmostatics: it may be given in doses of $\bar{3}$ iij, with castor oil $\bar{3}$ iij, three times a day. In all cases it is advisable to administer a purgative, and castor oil is perhaps one of the best. Any septic condition of mouth or throat, which might possibly be a source of infection, should be removed as far as possible by appropriate local treatment. Always, the patient should be put as far as possible into good hygienic surroundings, and in mild cases, or in convalescence in severer cases, country air is indicated. A change of air and surroundings will often remove a long-standing purpuric state.

A remedy recently suggested is chloride of calcium

in 10 to 15 gr. doses three times a day for a few days—not longer, as blood coagulability is diminished instead of increased if the drug be continued too long. Adrenalin has also been recommended.

In purpura dependent upon scurvy the treatment for this affection must be adopted—a sufficiency of vegetables and lemon or limejuice.

URTICARIA

Urticaria may occur as the result of local irritation of or injury to a normal skin, as from a stinging-nettle, bites of certain insects, even sudden severe blows, as the lash of a whip. There is, too, a form of urticaria which is regarded as a pure neurosis; but it may be questioned whether even here there is not some toxic influence as a basis. It is not, however, an affection of childhood. Here I shall deal only with urticaria as a symptom of toxæmia. In this rôle the common type of urticaria is less often seen in children than in adults. The special forms of urticaria, papular urticaria or lichen urticatus and urticaria pigmentosa—the former of very common occurrence in infants and children, the latter rare—have many features quite distinct from ordinary urticaria and they are therefore more conveniently considered apart.

The characteristic lesion of ordinary urticaria is the *wheel* or *nettle-rash*, which is a circumscribed, flattened elevation of the skin, arising suddenly, and generally transient and accompanied by marked itching. Wheals are of different shapes and sizes,

and vary in colour. Generally they are split-pea to sixpennypiece-sized, or they may be considerably larger, and, exceptionally, palm-sized. Usually they are of a whitish, waxy colour, but they may be pinkish or distinctly red. There is generally a tendency for the wheal to be round, but the margin may be irregular from extension in a direction of least resistance or from fusion of two or more wheals. They may also follow the direction of local irritation, as along a scratch mark. Lesions may be few or many and may occur on any part; the mucous membranes are often attacked. Rarely, hæmorrhage may take place into wheals, or they may vesicate and become bullous.

The eruption of urticaria may be of short duration, or it may continue over weeks or months, but in either case the individual lesions are transient and ephemeral.

As I have already stated, this, the common form of toxic urticaria, is not often met with in children. It may be seen, however, under the following conditions:—

(1) Acute transient attacks due obviously to the ingestion of some harmful food—shell-fish or tinned meats particularly.

(2) Chronic cases, that is to say, cases in which the eruption goes on for weeks or months in an intermittent way. Such cases are comparatively uncommon. They may be due possibly to some error in diet, or to some particular form of food which does not agree. I have generally found in these cases it is not possible to

incriminate any particular food, but the patients cease to have attacks while kept in hospital and fed simply and regularly. Cases have been recorded in which eggs were apparently the cause of urticarial attacks.

(3) In a third class of case, a sudden, generalized outburst of urticaria may occur as a symptom of a general pyæmic condition or septic poisoning from pent-up pus.

The **TREATMENT** of urticaria is, in the first place, if possible, to remove the cause, and where it is known that harmful food has been taken a purge is indicated. In the chronic form, removal from unhealthy surroundings to fresh air and regular and wholesome food is of more avail than the administration of drugs. Calcium chloride may be given with a view to increase the coagulability of the blood, or intestinal antiseptics may be administered. Local applications are useful to relieve the immediate itching.

CHAPTER X

AFFECTIONS OF TOXIC ORIGIN (*continued*)

VACCINAL ERUPTIONS

VACCINATION is accused by parents of the causation of all kinds of eruptions which may make their appearance subsequently. In the majority of cases these eruptions are altogether independent of the vaccination, and the parents' conclusions are based entirely upon the fact of sequence. Vaccination may indeed be the cause of certain eruptions, but the occurrence of such is very rare in proportion to the number of children vaccinated, and these eruptions are for the most part transitory, and, although to the clinician and to the pathologist of very great interest, altogether harmless to the patient; they are erythemas and urticarias such as may result from the use of other vaccines or serums (Pl. VIII).

Toxic erythemas and urticarias after vaccination. The fugitive erythematous eruptions which may appear after vaccination—while the lesion is developing—do not differ from toxic erythemas due to other causes, and they may be of roseolous, morbilliform, scarlatiniform, urticarial, or erythema multiforme type. A papulo-vesicular post-vaccinal eruption (vari-

cella prurigo of Hutchinson) has been described, but this, to my mind, is merely the very common affection lichen urticatus occurring coincidentally.

A second group of eruptions which may complicate vaccination, but all of which, with proper precautions, are avoidable, are those due to local infections from outside.

Eruptions due to local infections. Such affections as impetigo, erysipelas, or syphilis might be introduced at the time of inoculation, and formerly such infections did occasionally occur; but now that asepticism is generally practised pus infections at the time of the inoculation may be said to be unknown, while inoculation with syphilis cannot occur with the use of calf-lymph.

At a subsequent date—that is to say, not at the time of inoculation, but when the actual vaccinal lesions have arisen—infection may take place, resulting also in impetigo contagiosa or in erysipelas, or in septic ulceration or gangrenous inflammation of the lesions. But these evils, too, are to be easily avoided with proper care, and they occur only among the very poor or very indolent. In very rare instances lupus vulgaris, psoriasis, or keloid may subsequently occur at the seat of the vaccinal lesions, as at that of any other sort of lesion.

Apart from the transitory erythemas, and the avoidable local infections, there still remain to be mentioned two very unusual complications, re-inoculation and generalized vaccinia.

Re-inoculation. Up to the ninth or tenth day after vaccination, re-inoculation at a different site is possible. Cases have been recorded in which re-inoculation has taken place at the seat of an eczema, or upon the lesions of a varicella, or on those of herpes zoster or of herpes labialis or of impetigo. Obviously some of these cases might be avoided by refusal to vaccinate a child already suffering from skin lesions, or by special care when a skin eruption breaks out after vaccination.

Cases are not uncommon in which a recently vaccinated child has inoculated its parent, often in some unusual situation, as on the face.

Generalized vaccinia has been reported in very rare instances. Some of these cases are open to the objection that they may have been instances of widespread re-inoculation of the lesions of some independent generalized eruption from which the patient was suffering at the time. But there have been apparently a few genuine cases. In several of the cases reported the vaccine had been given by the mouth, or the child had sucked the vaccine sores.

ERUPTIONS PRODUCED BY DRUGS.

Drugs may produce eruptions on the skin, either as the result of external application or of internal administration. The former include the erythematous eruption of chrysarobin, the blistering by cantharides, the pustulation due to croton oil, eruptions due to sulphur and to arnica, and tar acne. These

have already been mentioned in the chapter on eruptions due to local mechanical causes.

The eruptions due to drugs administered internally have many of them been briefly noticed under 'Toxic erythemas'. Eruptions of the erythematous class are not of very common occurrence, but they are of importance on account of the difficulties that may arise in the diagnosis from the rashes of the exanthems. They may be produced by many different drugs, but notably by such as are known to have a physiological action on the nervous system or vaso-motor function, e.g. belladonna, quinine, salicylic acid and the salicylates and salicin, opium, chloral, antipyrin, and others. The eruptions produced by these drugs may be roseolous, scarlatiniform, morbilliform, urticarial, or even, in exceptional cases, purpuric. As has been said, none of these eruptions are common; the most often met with are probably those of *belladonna* and of *antipyrin*, both of which drugs are administered to children for whooping-cough, nocturnal incontinence, and other neuroses.

Belladonna. Children as a rule tolerate belladonna well, and large doses may be given without producing the physiological effects. In the rare instances in which a belladonna rash occurs, it usually does so after quite small doses, indicating an extreme degree of susceptibility to the drug. The rash is of importance on account of its close resemblance to that of scarlet fever. It consists of a bright, diffuse erythema, usually confined to the face and neck, but

extending sometimes to the upper part of the chest, and exceptionally becoming generalized. It is evanescent, lasting, as a rule, from half an hour to a few hours only. It is not generally followed by desquamation, though cases have been reported. Sometimes there is congestion of the throat and fauces, which adds to the resemblance to scarlet fever. The *diagnosis* is made upon the absence of fever, the dilatation of the pupils, the evanescent character of the eruption, and the knowledge of belladonna ingestion.

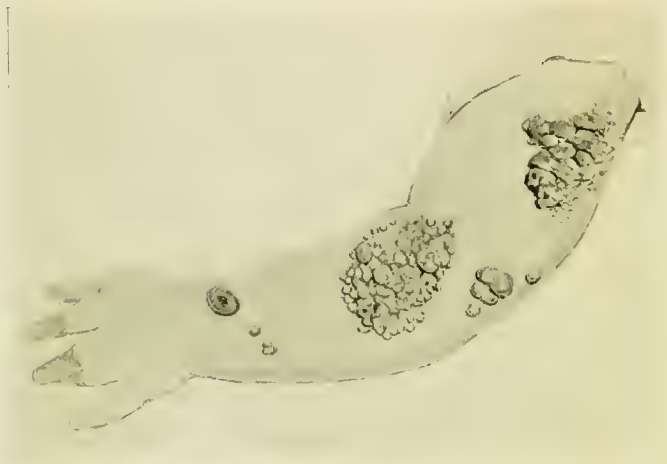
Antipyrin. The eruptions which may be caused by antipyrin are said to be of various types—scarlatiniform, morbilliform, and even vesicular or bullous; but by far the most common is a morbilliform erythematous eruption, more or less generalized and symmetrical in distribution. It has been described as brighter red in colour than the eruption of measles, but in several cases which I have seen it has consisted of sharply defined, closely set, dark purple-red macules, practically generalized, but most marked upon the fore-arms and hands, legs and feet, and on the neck and sides of the face.

Besides these drugs which give rise to erythematous eruptions, there are two others in common use which are liable to produce eruptions which have quite distinct and characteristic lesions—these are *bromide of potassium* and *arsenic*.

Bromide of potassium. Bromide of potassium is a drug which is frequently given to infants and



BROMIDE ERUPTION



BROMIDE ERUPTION
(MORE ADVANCED)

From drawing kindly lent by Dr. T. Colcott Fox

children, either on medical advice, for various nervous disturbances, or without, in the form of soothing powders.

Children, and infants especially, appear to be particularly susceptible to this drug, and in a small percentage it produces an eruption of the skin. Various types of eruption have been described—erythemas, urticarias, lesions like erythema nodosum; but all of these are uncommon. The most common and characteristic eruption consists of tense, prominent and superficial, pea-sized to marble-sized hemispherical pustules distributed symmetrically upon the limbs and face. These more characteristic eruptions of the bromides are described as being sometimes acneiform, sometimes pustular, or fleshy, or nodular, or bullous; but these various forms are only stages in one process. When one has an opportunity of watching the evolution of a bromide eruption in a child it is found to pass through the following stages:—At first there are small red erythematous spots or macules, which become rapidly papular or vesicular. In many instances the vesicles become quite large (pea-sized or larger) before they become pustular and turbid, so that they may be mistaken for pemphigus; in others the vesicles are turbid almost from the first. In any case tense, opaque, whitish pustules, not deep-seated but projecting prominently from the surface level, are formed, which quickly dry up into dark thick scabs. Or, if the process continues, either under the scabs, or without scab formation, fungating granulations spring from

the base of the pustule, forming the nodular or fleshy growths that are described. The lesions may accidentally occur round the hair follicles, but they are not necessarily follicular, and they have not, as was formerly supposed to be the case, anything to do with the sebaceous glands. The lesions described may often run together into confluent areas. It must be remembered that such eruptions may occur in babies at the breast, who are receiving no drug, but whose mother is taking bromides. A remarkable feature of these eruptions is that they are unaccompanied by pain, itching, or by constitutional disturbance.

The **DIAGNOSIS** of bromide eruption is not difficult when one has once seen an example ; but to those unfamiliar with it it may be puzzling. The individual lesions, when seen in the clear vesicular (or bullous) stage or as opaque pustules, sometimes with a central scab beginning to form, closely resemble the lesions of vaccination. The occurrence of many such lesions on the outer surface of both legs, or in addition on the arms and sides of the face, is quite characteristic, and cannot be mistaken for any other eruption. The eruption generally appears only after the drug has been given for several weeks, and it may even come out after the cessation of its administration.

A very similar eruption—with perhaps rather more tendency to bullous formation—may be produced by iodides.

TREATMENT. The treatment is, of course, first of all, to stop the administration of the drug. In addition,

small doses of arsenic may be given: they are said to favour the devolution of the eruption. The eruption is often very long in fading, more especially if it has become fungating, but it eventually disappears and without leaving any trace.

Arsenic. Very many forms of eruption have been recorded as resulting from the internal administration of arsenic—urticarial, erythematous, papular, vesicular, ulcerative, &c.; but such eruptions are rare after medicinal doses. There are, however, three special forms of skin affections which are sometimes seen as the result of arsenic administration in medical practice.

Herpes zoster. A typical eruption of herpes zoster has many times been observed to occur in persons taking arsenic. The relative frequency of its occurrence in association with arsenic administration puts the causal relationship beyond doubt. Since arsenic is sometimes given in large doses to children for chorea, or in psoriasis, this relationship is sometimes met with in them.

General pigmentation may occur after prolonged administration of arsenic. In children it may occur even with comparatively small doses. The neck, axillæ, abdomen, and groins are the parts chiefly involved. The pigmentation is at first in the form of a sort of mottling, with white areas (around the hair follicles) on a ground of more or less deep pigmentation.

Keratosis of the palms and soles may also result

from prolonged administration of arsenic. It is associated with sweating of the palms and soles.

Both the pigmentation and the keratosis, as a rule, gradually disappear when the drug is discontinued; though in deeply pigmented cases this may be permanent, while keratosis palmaris may also be very persistent.

Herpes zoster runs the usual course.

CHAPTER XI

AFFECTIONS OF NERVOUS ORIGIN

To state that an affection of the skin is of nervous origin, or to label it a dermato-neurosis, does not finally settle the question of its causation, and one must, if possible, go further back and determine the reason of the nerve disturbance. It is convenient, however, to class certain cutaneous maladies as affections of nervous origin, meaning thereby, not that nervous derangement is the primary cause of such affections, but that it is an important factor in their etiology.

Skin affections in the causation of which the nervous system is, or may be supposed to be, involved may be ranged in three or four classes:—

(1) First, there are those in which there is actual anatomical disturbance of some part of the nervous tract corresponding to the area of the skin affected, such, for example, as the trophic lesions or vaso-motor or sensory disturbances after injury to a nerve, or those associated with syringomyelia, or the eruption of herpes zoster in association with inflammation of the posterior root-ganglia.

(2) Then, there is a large class of affections in which there are no accompanying visible anatomical

lesions in the nervous system, but which are, on clinical and physiological grounds, regarded as dependent upon disturbed innervation; sometimes of the vaso-motor functions, as in the toxic erythemas and in urticaria; sometimes of sensation, as in pruritus, hyperæsthesia, anæsthesia; or of glandular function, as in hyperidrosis. In all of these affections, however, the nervous system is merely performing its normal function, though to an exaggerated degree, either as the result of abnormal stimulus or inhibition, or because the nerves themselves are hypersensitive (as in so-called 'neurasthenia') and normal stimuli result in excessive reaction.

In many of these affections it is not even certain that the nervous system is involved at all; such are the toxic erythemas and urticarias, where it is possible that the poisons act directly upon the muscular walls of the vessels. These affections are, at any rate, better classed as toxic than as nervous complaints. The sensory disturbances—pruritus, hyperæsthesia, anæsthesia—are more justly classed as of neurotic origin, though these, too, are either dependent upon unusual stimuli or are merely part of a nervous disturbance of which we should seek the cause.

(3) Yet another group may be made of those eruptions which are often regarded as neurotic, either because they are sometimes associated with other nervous symptoms, or because the distribution of their lesions suggests a nervous origin, or because all other causes seem to be excluded. Such are some cases of

eczema, lichen planus, dermatitis herpetiformis, pemphigus, sclerodermia, leucodermia, Raynaud's disease, &c. In none of these affections has the presence of anatomical nerve lesions been satisfactorily demonstrated, and the eruptions themselves in most cases do not (except perhaps in the case of Raynaud's disease or in leucodermia) suggest, as in the previous group of cases, a disturbance of normal function. Their classification as diseases of nervous origin is therefore at present merely a matter of custom or of convenience.

(4) A fourth group of cases may be made of those occurring in hysterical subjects, where the eruption is the result of self-inflicted injuries.

In the following pages I have not attempted any systematic description of these 'affections of nervous origin', but I have selected merely those which are more common in children or which have special characters at this time of life.

HERPES ZOSTER, OR ZONA.

Authors are not agreed as to the relative frequency of herpes zoster in children and in adults. My own experience is that it is of more frequent occurrence in children, and that in them it is by no means a rare affection, the average proportion to other cases in hospital practice being 1 in 160.

Clinically, herpes zoster in children differs from the same affection in adults in that the severe pains which often precede, accompany, or follow the eruption

in older patients are generally absent or little marked ; while, on the other hand, premonitory febrile symptoms are often more prominent in children.

SYMPTOMS. The eruption is characterized by the occurrence of groups or clusters of small tense vesicles, arranged in a broken band along one side of the body, or along a limb, or upon the face. As the peculiar arrangement of the lesions suggests, these are situated in the areas of nerve distribution, although, as will be presently explained, they correspond, not to the distribution of individual nerves, but to that of fibres from one or more posterior nerve-roots.

The course of an attack of herpes zoster is very definite ; the eruption appears suddenly, lasts for a week to ten days, does not relapse and does not recur. In children, especially, there may be premonitory febrile symptoms for two or three days, generally slight, sometimes sufficiently marked to suggest that some illness is impending—headache, malaise, sickness, and slight fever.

The eruption begins generally as erythematous patches upon which there soon appear small papules, which rapidly become vesicles ; so that the fully developed patch consists of closely set tense pinhead to pea-sized vesicles upon an inflamed base. There may be from half a dozen to a score or more of vesicles in each patch or cluster ; and there may be from one to a dozen or more patches. The vesicles are at first clear, but later they may become turbid, and, in the normal course of events, after a few days

they dry up into crusts. In a week or two weeks' time the crusts fall, leaving a red macule, followed for a time by a pigmented spot, but by no subsequent scar.

Sometimes the vesicles may become ruptured by friction or by scratching, and, occasionally, infected, and in consequence, inflamed and ulcerated, leaving eventually deep-seated scars. On the other hand, individual patches or even the whole eruption may not reach the full stage of development, and there may be merely small papules upon an erythematous base (abortive zoster).

Apart from the characteristic localized unilateral band of clustered vesicles, there may occur irregularly and sparsely scattered over all parts of the body isolated vesicles. These have been called aberrant vesicles, and are said to be present in nine cases out of ten. They are usually very few in number and may be easily overlooked unless the patient be stripped and examined carefully.

The lymphatic glands corresponding to the area affected in herpes zoster usually become temporarily enlarged and tender.

DISTRIBUTION OF THE ERUPTION. Zona may appear upon any part of the skin surface. It is almost invariably unilateral. Cases have been reported, but they are very rare, in which it has occurred upon the two sides, though not usually at the same level.

The most common situations are the chest, *herpes pectoralis*, and the lumbo-abdominal region, *herpes*

abdominalis. The upper arm may be affected when the chest is involved, and the thigh with the lower abdominal region; or the thigh and buttock may frequently be alone affected, *herpes femoralis*: but the eruption is rare upon the forearms or upon the leg below the knee. Next in order of frequency come the shoulders, *herpes cervicalis*, and the forehead *herpes frontalis*, though the latter is rare in children.

Herpes pectoralis is, in children, one of the most frequent forms. The eruption may consist of only one or two groups of vesicles, or of many groups extending in a broken line from the mid-spine behind to the mid-abdominal line in front. There are usually three chief groups of vesicles, one near the spine, one lateral, and one in the middle line in front. The posterior patch generally appears first. The eruption mostly occupies the width of two or three intercostal spaces, and its direction corresponds with the inclination of the ribs. The areas chiefly involved correspond to the regions supplied by the dorsal posterior nerve-roots from the third to the eighth.

Herpes abdominalis is only a little less frequent than the last form. Here the lesions occupy the lumbar region and the abdomen, and often overlap on to the thigh. They correspond to the posterior nerve-roots from the ninth dorsal to the twelfth dorsal (Plate X, *herpes zoster*).

Herpes femoralis is also a common form. The eruption occupies the buttock, and the outer side and

front of the thigh as far as the knee, and corresponds to the first and second lumbar roots.

The posterior roots from the third lumbar to the fifth sacral are rarely involved, so that herpes of the inner side of the thigh and of the leg below the knee is uncommon.

Herpes cervicalis, about equally frequent with the abdominal and femoral distribution, depends upon involvement of the third and fourth cervical and affects, therefore, the back and sides of the neck and the shoulders.

Herpes frontalis. Herpes affecting areas corresponding to the sensory nerve distribution of the face—that of the fifth cranial nerve—is very rare for the two last divisions; but the area supplied by the first or supra-orbital division of the fifth is fairly commonly affected (*herpes frontalis*). Part or the whole of the area supplied by this branch may be affected. The eruption may occupy the upper eyelid, the side of the nose, one side of the forehead, and one half of the crown as far back as the parietal eminence. When the side of the nose is affected, in about half the cases there is ulceration of the cornea—or iritis may occur.

ETIOLOGY AND PATHOLOGY. The clinical features of herpes zoster—the sudden onset, sometimes with febrile disturbance, the definite course, the infrequency of recurrences—suggest an infectious disease; while the peculiar distribution of the lesions points to involvement of areas of nerve distribution. To the ques-

tion whether the disease is one of microbic origin, we have at present no definite answer; but the evidence that the eruption depends upon involvement of nerves is fairly conclusive. So long ago as 1861, Barensprung described a lesion of the intercostal nerves, and in 1865 he reported a case in which the posterior root ganglia corresponding to the nerve-supply of the area affected were injected and swollen and showed connective tissue proliferation passing outwards along the nerve trunks; similar lesions were found subsequently by others: later observations showed that an actual neuritis or sclerosis was present in the efferent nerves. More recently, Head and Campbell in the examination of a large number of cases found hæmorrhage into the posterior root ganglia, leading ultimately to sclerosis of the ganglia and to degenerative changes in the posterior columns and in the peripheral sensory nerves. Thus it comes about that the areas affected by the eruption correspond not to any single nerve but to the areas supplied through one or more, or parts of one or more, root-ganglia. In many ways these observations show the affection to be analogous with acute anterior polyomyelitis: the clinical features suggest an acute infectious disease in both instances; and in the one, involvement of the anterior horns of grey matter with consequent muscle paralysis; in the other, of the root-ganglia or corresponding grey matter and herpetic eruption—sometimes accompanied by severe pains.

Herpes zoster may be the result, also, of other forms

of injury to, or of disease involving, the posterior roots; it may occur in spinal meningitis, in spinal caries, or in connexion with a new growth, such as sarcoma.

Herpes zoster may result, too, from administration of arsenic, and may then be explained either by the direct toxic action of the arsenic upon sensory fibres, analogous to that which produces paralysis by poisoning of muscular nerve-fibres; or it may be that the arsenic acts merely as a predisposing cause rendering the patient more liable to an attack of ordinary zoster.

In the vesicles of the eruption of herpes zoster there are found certain peculiar bodies known as 'balloon-cells': these are swollen epithelial cells which have lost their prickles. With the exception of this peculiarity the vesicles of herpes do not differ from those of other affections.

DIAGNOSIS. The diagnosis of herpes zoster is usually easy: the groups of vesicles upon an inflamed base and the unilateral and linear distribution of the patches are characteristic. In mild cases where the patches are few and the lesions 'abortive', the unilateral distribution and the sudden onset should do away with any doubt as to the nature of the eruption. When a herpetic eruption occurs on the face, especially upon the cheeks or near the ears or on the genitals, there may be some difficulty in distinguishing between herpes febrilis and herpes zoster. In herpes febrilis the eruption, except when about the ear, occurs usually upon both sides, and there is usually a history of previous attacks.

TREATMENT. The treatment is simple. All that is required is protection from friction or scratching; Lassar's paste may be applied to the lesions and the whole covered with cotton-wool and a bandage. If the lesions are scratched and infected the best application is a simple boric acid fomentation, followed, when the sores are clean, by white precipitate ointment or Lassar's paste. The measures necessary sometimes in adults for the treatment of after pain are not required, since this symptom is absent in children.

HERPES FEBRILIS

Febrile herpes is the name given to an eruption of vesicles often seen about the lips in association with common colds. It is of very frequent occurrence in children. Although most often seen upon the lips, it may occur upon the nose, cheeks, chin, or ear, or even upon the mucous membrane of the inner surface of the lips, or on the palate or uvula. It occurs also in association with various other febrile illnesses, notably with tonsilitis, with acute pneumonia, and with cerebro-spinal meningitis. The lesions consist of groups of vesicles upon a common erythematous base. Their eruption is accompanied by some burning or pain. Small papules appear and rapidly become vesicular, and the vesicles after a few hours dry up into crusts and eventually fall off without leaving any scar. On mucous membranes the vesicles rapidly become broken so that excoriated patches take their



HERPES FEBRILIS



HERPES ZOSTER
Photograph kindly lent by Dr. A. Whitfield

place. A very characteristic feature of the eruption is a *tendency to recurrence*. Many children (and adults) suffer from the eruption whenever they get a cold; others apparently with gastric disturbance—possibly also of infective catarrhal nature.

Herpes febrilis may also occur about the genitals—*Herpes progenitalis*; but this form is not seen in children.

Although such a common affection, little is known of its etiology beyond the fact that it is associated with febrile disturbance. It is generally regarded as neurotic, though on no very definite basis: it is said to depend upon reflex irritation of the neighbouring sympathetic ganglia due to local or internal irritation; and by some it is considered to be an irregular form of Herpes zoster (Plate X, *herpes febrilis*).

DIAGNOSIS. The diagnosis as a rule is easy. The very circumscribed grouping and the larger size of the vesicles distinguish it from eczema. When crusted it may be mistaken for a patch of impetigo: its localization, its association with febrile symptoms, and its spontaneous cure help to differentiate it. From herpes zoster it is distinguished by its bilateral distribution, zoster being always unilateral. When about the ear or upon the cheek herpes febrilis may be unilateral, and there may be difficulty as to whether to regard it as 'febrilis' or 'zoster': it must be remembered, however, that zoster is extremely rare in the region of the third division of the fifth nerve, and probably many cases recorded as herpes zoster of the

third division may have been really herpes febrilis; recurrence would be in favour of the latter.

TREATMENT. The eruption usually requires no treatment; but in persons who are troubled by its constant recurrence something may be done to prevent attacks or to abort the eruption. A course of arsenic in small doses sometimes appears to remove the tendency to attacks. In many patients an attack may be warded off by taking a few grains of quinine directly the warning sensation of burning appears. After the eruption has appeared, useful applications are: (1) soothing or protective—calamine lotion, or collodion flexile, painted on early; (2) stimulating applications—strong sulphur ointment or undiluted nitrate of mercury ointment.

DERMATITIS HERPETIFORMIS

In this affection there occur widely distributed lesions which may be of an erythematous, papular, vesicular, pustular, or bullous type, but which are always characterized by the marked tendency to grouping, and to eruption in successive outbursts over long periods, and which are accompanied by burning pains or by intense itching. It was the tendency to grouping of the lesions, often as small vesicles, that first suggested the term 'herpetiform'. The disease is very rare in children, though it has been met with at all periods from infancy onwards. A feature of the eruption is its multiformity; it may change its type in different outbreaks, or different

forms may appear together. On its first appearance it is very prone to be erythematous or urticarial; later bullæ may appear or groups of papules or vesicles. The affection is obstinate, and its tendency to recur is marked. It may continue into adult life, or it may cease at puberty. The intense itching gives rise to scratching, and excoriations thus produced may leave minute scars and pigmentation at the seat of former patches, which are valuable as aids to diagnosis.

The nature of the affection can at present only be guessed at: the accompanying pruritus suggests that nerve influence plays a part, though exactly how it is difficult to say. It is now thought that toxic agents are probably the primary cause. Cases have been reported recently as occurring after vaccination, but there is doubt as to their identity.

DIAGNOSIS. The grouping of the lesions and the burning pain or itching are the prominent features. Other pruritic eruptions, as scabies and urticaria, must be excluded. Eczema is distinguished by the tendency to exudation which is absent in dermatitis herpetiformis; when vesicles occur in the latter they are grouped, but less closely packed than in eczema, and a weeping surface is never formed. It must be remembered that the disease is very rare in children, and that often a diagnosis can only be made after long observation of successive attacks.

TREATMENT. The results of treatment of this affection are not satisfactory. The most important measures are those directed to improving or main-

taining the general state of health. Various drugs have been given internally, but there is none which can be relied upon to effect improvement. As local measures antipruritic lotions or ointments are indicated.

LICHEN PLANUS.

Lichen planus—a very uncommon affection in childhood—is characterized by an eruption of papules which are firm, flat-topped, polygonal in outline, and generally of dull red or violet tint. In the rare event of its occurrence in a child it is generally disseminated more or less profusely over the trunk. The individual papules may be from pin-head sized or smaller up to millet-seed sized or somewhat larger, and much larger patches may be produced by grouping and coalescence of papules. More or less itching is generally present.

It must be remembered that the papules of lichen urticatus may become dusky red and flattened and thus closely simulate the papules of lichen planus; but the presence of wheals or of more recent rounded papules at some time, and the absence of a peculiar grouping belonging to lichen planus lesions, enable a correct diagnosis to be made. The cause of lichen planus is unknown; but it is generally supposed that the nervous system plays an important part—at any rate in adults. The papule is histologically a collection of mononuclear cells in the superficial parts of the dermis. The **TREATMENT** is to be directed towards improvement of general health and to calming of pruritus by local applications.

GRANULOSIS RUBRA NASI

Under this name Jadassohn has recently (1901) described an affection which, from the considerable number of cases since recorded, appears not to be very rare. It is seen in children of both sexes towards the age of eight to ten years. The end of the nose is the seat of an erythematous patch, which extends usually on to the alæ: it corresponds exactly to the cartilaginous portion of the nose—that is to say, to that area of skin which is adherent to the subjacent tissues. There is no perceptible infiltration. The surface has a granular appearance on account of the presence of a number of minute papules, the largest of which does not exceed the size of a pin's head. A remarkable feature of the affection is that the redness is accompanied by a constant *sweating*, limited to the area affected. The redness and sweating may be increased in the summer months; they continue for years, and as the disease is not seen later, probably fade towards adolescence. In a few cases small cystic swellings have appeared, which are probably of the nature of dilated sweat ducts from retention, and thus related to hydrocystoma. Histologically, there is found a cell infiltration in the derma involving the sweat glands and ducts. The condition is frequently associated with a weak, peripheral circulation.

DIAGNOSIS. This affection has sometimes been mistaken for lupus vulgaris; it should be distinguished by the presence of hyperidrosis and by the fact that

the papules are minute and practically without infiltration, disappearing under pressure.

TREATMENT. Local applications, such as drying powders, or astringent lotions, have given only temporary benefit. Scarification has been employed with success, but since the affection ultimately disappears spontaneously it is questionable whether this is advisable.

RAYNAUD'S DISEASE, OR SYMMETRICAL GANGRENE OF THE EXTREMITIES

Raynaud's disease, though rare at all ages, and occurring chiefly in young adults, is sometimes met with in children. The parts involved are the fingers and toes, and less often the nose or the ears. The affection usually begins with intermittent attacks of numbness, coldness, and whiteness of the fingers or toes—*local syncope*. In the earliest stage these paroxysmal attacks of 'dead-fingers' may be the sole symptom, but after a variable time this is followed by blueness, swelling and pain—*local asphyxia*. The lividity and congestion, which at first disappear with each attack, afterwards become to a certain extent fixed, and are in turn succeeded by actual death of the parts—*gangrene*. The gangrene, which may be limited to superficial areas of tissue or which may involve considerable portions of the fingers or toes, is usually of the dry variety; but sometimes it is moist, and blisters form or ulceration takes place.

This condition is generally regarded as dependent

upon vaso-motor disturbance leading to spasm of arterioles, but no organic lesions have been found to support this theory.

DIAGNOSIS. The milder forms or earlier stages must not be confused with chilblain or with any other of the conditions in which blueness of the extremities occurs. The essential feature in Raynaud's disease is its paroxysmal character.

TREATMENT. Raynaud recommended the constant current. The positive pole is applied to the fifth cervical, the negative pole to the fifth lumbar vertebra or along the extremities. Placing the parts in an electric bath has also given good results in stages before gangrene has occurred. The general condition must be attended to.

PRURITUS, OR ITCHING

Pruritus is a symptom rather than a disease. In adults it may frequently occur without any skin-eruption as the result of reflex irritation from some visceral disease, or from lithæmia or other toxic condition. In children, except as a local pruritus—itching of the nose or pruritis ani as the result of intestinal worms—it is scarcely met with apart from a cutaneous eruption. The commonest causes of pruritus in infants are eczema, scabies, and lichen urticatus.

DIAGNOSIS OF THE CAUSES OF PRURITUS. Pruritus from these causes may be met with *in babies* who are too young to locate the irritation; they do not therefore scratch, but the presence of itch-

ing is shown by restlessness, especially at night, by rubbing of the head from side to side, or of the face upon the shoulders and arms, and of the legs upon each other. The eruption with which the itching is associated may be localized to the face and scalp, or mainly upon these parts, with a mask-like distribution upon the face, cheeks, and chin: in this case the eruption is probably *eczema*. If there is a more generalized eczematous eruption, involving not only the face but the trunk and limbs, careful search must be made about the hands and feet for the burrows and acarus of *scabies*. If there be but little eczematous element, but a papulo-vesicular or pustular, widely distributed, eruption involving especially the hands and feet, the diagnosis lies probably between *scabies* and *lichen urticatus*, and the characteristic lesions—burrows, or wheals—must be sought for.

In older children, pruritus may be due to *scabies*, to pediculosis capitis, to *eczema*, or less commonly to urticaria, prurigo, summer eruption, dermatitis herpetiformis, or urticaria pigmentosa. In the presence of a more or less generalized pruritus *scabies* must always be thought of and excluded before thinking of other causes. The lesions of *urticaria* and of *urticaria pigmentosa* are sufficiently characteristic. But a diagnosis of *dermatitis herpetiformis* or of *summer eruption* may be only possible after watching the case for a long period. The grouping of the lesions and recurrent outbursts of the first, the

localization of lesions to exposed parts and occurrence of the eruption in summer in the latter, are important points. *Prurigo of Hebra* is scarcely seen except in hospital practice in the east end of London.

The **TREATMENT** of pruritus is discussed in the account of those affections which give rise to it.

THE CONSEQUENCES OF PRURITUS. Apart from the various eruptions that may be accompanied by itching, it must be remembered that the itching itself, or rather the rubbing or scratching which it induces, may give rise to eruptions. The lesions of the original eruption, of eczema, of scabies, or of lichen urticatus for example, may be torn and excoriated; in many cases they become secondarily infected by pus organisms, so that the crusted lesions of impetigo contagiosa, ecthymatous lesions, or pustular follicular lesions of staphylococcic impetigo are produced. Again, as the result of long-continued scratching, the skin may become infiltrated and thickened in parts (lichenified) or it may become deeply pigmented, while the lymphatic glands in the groin, axilla, and elsewhere become enlarged. These results, however, are seldom seen in children, except in unusual cases of very chronic eczema, or in the rare examples of Hebra's prurigo.

CHAPTER XII

AFFECTIONS OF UNKNOWN ORIGIN

ECZEMA

GENERAL REMARKS UPON ECZEMA. Eczema is an affection which has always engaged the close attention of those who study diseases of the skin : its common occurrence at all periods of life ; the troublesome nature of its symptoms ; the difficulties of its treatment ; and the unsolved problems of its nature and of its cause, all lend to this disease a special interest. The question of the causation of eczema, although still unanswered, is becoming a more restricted one, for the limits of eczema are gradually becoming more clearly defined, and many affections formerly regarded as eczema are now removed from this group. The etiology of eczema has been studied from many points of view : heredity ; diathesis ; nervous influence ; toxic influence ; microbic action ; external irritation. Of recent years the main discussion has turned upon the point as to whether it is of microbic origin or not, and broadly two views are now held as to its nature : (1) that it is of microbic origin ; (2) that it is a special form of inflammatory reaction of the skin which occurs in certain predisposed subjects, either as

the result of (a) internal causes—toxic or nervous, or (b) of external causes—in the form of local irritation of various kinds.

Unna has been the chief supporter of the theory of microbic origin, and he holds firmly to the view that eczema is due to a special organism which he has named the 'morococcus'. Others regard micro-organisms as only one of many causes of eczema; while many consider that organisms may take a part in the formation of the lesions although they are not the essential cause of the eruption.

At the present time the tendency is more and more to regard eczema as *amicrobic*, although liable to secondary infection. This is the view held by such authorities as Jadassohn, Brocq, Neisser, and Sabouraud. It may even be said that the amicrobic origin is one of the criteria of eczema—if an eruption is known to be of microbic origin this at once excludes it from the category of eczema.

For the reasons indicated, it is difficult to frame a *definition of eczema*. Tentatively it may be defined as a catarrhal inflammatory condition of the skin, of non-bacterial origin, occurring in certain predisposed persons, either as the result of some local external irritation (which may be too slight to cause any reaction in a normal skin), or from the presence of some toxin, or under reflex nervous influence. But of the nature or the cause of this predisposition we are ignorant.

Clinically, the condition is characterized by the

sudden eruption of closely-set, minute vesicles upon an erythematous or œdematous base, and it is accompanied by an intense burning sensation, or by itching. Soon the vesicles burst, or are ruptured, giving rise to a weeping surface, or to a discharge of serous fluid, which dries into crusts. The various lesional forms of eczema which are described, such as erythematous, papular, squamous, pustular, eczema madidans, eczema rubrum, &c., are either different stages of the same eruption, or the eruption modified by complicating circumstances. The essential features in all forms are (*a*) an acute inflammatory *œdema of the epidermis*, indicated by the presence, sooner or later, of minute clustered vesicles upon a swollen and reddened base, (*b*) the intense burning or itching, and (*c*) the tendency to sudden outbursts of the lesions.

Pathologically, the chief features of eczema are— (1) a dilatation of the blood-vessels of the corium,— which supplies the serous exudation, and causes the erythema. (2) A swollen condition of the cells of the prickle-cell layer of the epidermis ('spongy metamorphosis'), due to œdema. (3) A thickening of this layer, due not only to œdema, but to a multiplication of the pickle-cells (acanthosis). (4) An irregular cornification of the cells of the horny layer (parakeratosis), as a result of the œdema, so that they retain their nuclei and tend to adhere together to form scales. (5) The œdema of the prickle-cell layer producing, at certain points, by the separation and solution of the prickle-cells, serum-containing cavities which are

gradually advanced towards the surface of the epidermis to form the minute vesicles. (6) In addition to the serous exudation, a certain amount of cellular exudation which collects beneath the epidermis and finds its way through the epidermis into the vesicles and crusts.

All of these changes, however, are manifestations of an inflammatory process, and any of them may occur in inflammatory conditions other than eczema. Their combination, though characteristic of eczema, cannot be said to be peculiar to this affection and from them we do not get any clue as to the actual cause of eczema.

Eczema is described as being acute or chronic, but the eruption is always acute in its onset, and chronicity is due to long duration rather than to a modified process. Many so-called chronic eczemas are now regarded as of a different nature altogether; such of these as are met with in children are discussed under 'microbic infections'. Eczema may occur at any period of life, but our chief concern here is with *infantile eczema*. Infancy is the period of childhood at which it is most common, and it then bears certain characteristic features. In older children it is comparatively less common, and it does not then differ from eczema in adults, except that certain adult types such as 'trade eczemas', 'varicose eczemas', 'palmar eczemas', are not met with, or rarely met with, in children.

ECZEMA IN INFANCY

Eczema is of frequent occurrence in babies during the first two years of life. Why it should occur especially at this time we do not know precisely. The fact that dentition takes place at this period has suggested some etiological connexion, but eczema may appear even during the first six months, before any teeth are cut, so that it cannot be an essential factor. In the same way, gastro-intestinal disturbances, over-feeding and under-feeding, so common at this period have all been accused without sufficient reason. So also has vaccination; but there is no proof whatever that vaccination is ever the cause of eczema, and here again many cases occur before vaccination, while thousands of children are vaccinated without eczema following. The only real clue that we have in regard to the causation of eczema in babies is that local sources of irritation certainly appear to determine an outbreak, and, I think, there is no doubt that when once established, local irritation is the chief cause of its continuance. But mild local irritations alone, such as result from exposure to the air, the frequent use of water, the use of strong soaps, soiling by discharges or food, rubbing and scratching, and which are sufficient in certain subjects to determine an outbreak, or to keep up the eruption when once it has appeared, do not in a normal infant result in eczema. There is some other factor of which we are ignorant. Modern research goes to show that eczema is not of microbic

origin, and, indeed, the absence of microbic action as a causative agent is now regarded by many as one of the essential features of eczema—an affection which is primarily microbic is not eczema.

SYMPTOMS. In infants eczema has a special and characteristic distribution upon the face. It usually begins either upon the forehead or upon the cheeks. Many writers state that it commonly spreads from the scalp downwards on to the face, but this is not my own experience. Careful inquiry and observation in a large number of cases has convinced me that it is generally first noticed upon the cheeks or forehead. In the milder cases it often remains limited to these parts (Fig. 4). It begins with an unusual redness and roughness, the redness varying in intensity from time to time. Close inspection of the red, rough surface shows that it is not really dry; the epidermis is fissured in all directions with minute cracks from which clear serum oozes, or here and there is dried into tiny ridges. At a more advanced stage, if undisturbed by rubbing, or if the process has been more acute from the beginning, there are seen, closely-set, minute vesicles, or papulo-vesicles on a red, hot, swollen surface. Then, as the result of rubbing or scratching, the vesicles break and a raw, weeping surface is produced; the discharge may then dry in crusts, resulting in the typical red, inflamed areas covered with crusts, between which, later, is seen the red, weeping surface beneath. The eruption frequently spreads on to the scalp, and it may appear

upon the wrists, upon the legs, or even about the trunk, in patches of closely-set minute (pin-head-sized or smaller) vesicles or papulo-vesicles upon a red, inflamed base, followed, if the process continues, by weeping and crusting. Always, the tendency to sudden outburst of the eruption, or to sudden aggra-



FIG 4.

vation upon irritation, and the equally rapid decline which often occurs when the parts are protected, are characteristic features of eczema. In babies the eruption is seldom absent from the face and it is often confined to that part. It has, too, a strikingly characteristic *mask-like distribution* here; the forehead, the cheeks and the chin are affected, leaving out the orbits, the mouth, and the nose (Fig. 4). *Pruritus* is a marked symptom of eczema in infants, and it is one of the most important points to consider in

the treatment, for the rubbing or scratching which the itching induces keeps up the eruption, and a few hours of such irritation may undo the result of weeks of treatment. Moreover, the restlessness caused by this symptom often prevents sleep at night, and though it is remarkable that the baby may for long appear to be free from ill effects owing to this cause, it does eventually suffer in health. Meanwhile the rest of the household are often more seriously affected than is the child itself.

Another noteworthy feature of eczema in babies is a *tendency to relapse*. Most often, fresh outbreaks are to be traced to local irritation, but this is not always so, for sometimes exacerbation occurs in spite of proper protection and restraint. However, under suitable treatment the most obstinate cases are eventually controlled, and, except in neglected cases, infantile eczema does not tend to continue into later childhood, and the majority of cases are well before the end of the second year of life.

Writers are accustomed to divide eczema of infants into three groups, viz., 'nervous eczema', 'impetiginous eczema', and 'seborrhœic eczema'; but in practice it is very difficult to draw the line between these different types. The form above described, and which corresponds to the nervous group of most authors, is certainly the most characteristic, the most common, and the most deserving of the name of eczema.

Impetiginous Eczema or Tuberculous Eczema. In weakly infants and young children the margins of the eyelids, and the nostrils, may be the seat of crusted lesions, and, often, the post-aural region of weeping areas, in association with what appears to be an eczema of the face, or of the face and scalp; and such combination of lesions is usually regarded as characteristic of 'impetiginous' or 'tuberculous' or 'scrofulous' eczema. The glands of the neck may be enlarged, and itching may be little marked or absent. It is probable that many of these cases are not eczema at all, but extensive chronic impetigo due to local coccic infection. Some of them, however, do appear to have

eczema as a basis; for when one has cleared off the impetigo by appropriate antiseptic treatment, a certain amount of eczema, requiring soothing and protective treatment for its cure, remains. My own view of this type of case is that it has no relation to tuberculosis, but that the enlarged glands are the result of chronic irritation from the skin lesions, and that even the corneal ulcers, which sometimes occur, are also the result of local coccic infection and not of 'strumous' nature.

'**Seborrhœic Eczema.**' The seborrhœic type of infantile eczema is comparatively uncommon. Its characters are, that it occurs in more or less sharply-margined patches or areas, with yellowish greasy-looking scales on a reddened base, considerably less irritable than ordinary eczema, affecting especially the scalp, the post-aural regions, the parts around the mouth, the naso-labial fold, the neck, the flexures—axillæ, groins—and, in babies, the parts about the buttocks and the thighs. When this eruption, as is sometimes the case, is practically confined to the head and face, it may be very difficult to distinguish it from typical eczema. The mother frequently suffers from 'seborrhœa capitis' or from 'eczema seborrhoicum' of the face, and this is often a guide to a correct diagnosis. I have already referred to this form of eruption under 'affections probably of local microbic origin', but it is necessary to mention it here for the sake of comparison and because it is usually regarded as an eczema. The rapid cure of this eruption by the application of a mild parasiticide is alone sufficient to distinguish it from true eczema.

DIAGNOSIS OF ECZEMA IN INFANTS. The clinical characters of eczema in infancy are so striking that there is usually no difficulty in making a diagnosis. In the mildest cases there is little more than an appearance of roughness and redness of the skin, upon the cheeks, or upon the forehead, or both, which, on closer inspection, is seen to be due either to a superficial cracking of the epidermis, with perhaps a little oozing in the cracks, or to the presence of minute vesicles; and this condition is accompanied by marked itching, as seen by the efforts of the baby to rub its face against objects. In the more severe cases the mask-like distribution upon the cheeks and forehead, leaving free the nose, eyes, and mouth, is very characteristic. Other features are the redness and heat in the part, indicating obviously its inflammatory nature, with, in the less severe cases, minute moist cracks or tiny crusted vesicles, seen on close inspection, and in the more marked cases, crusts and scales with oozing secretion between. The intense itching of the lesions, and the tendency to sudden exacerbations of redness and oozing after rubbing or scratching, are prominent features.

From *impetigo* in these situations eczema is distinguished by the more patchy and irregular distribution of the lesions of impetigo, which on careful inspection are seen to be made up of comparatively large exco-riated or crusted areas obviously of 'phlyctenular' origin. Impetigo also often attacks the region of the eyes, the nose, and the ears, which are usually left free by eczema. Impetigo is also free from itching.

Scabies in infants produces an eruption which may

easily be mistaken for eczema. The fact that it is widely spread, often almost universal, at once suggests scabies, and the diagnosis is confirmed by the finding of burrows upon the hands and feet. (Vide *scabies*.)

I have already said that true eczema may be confused with the so-called 'impetiginous eczema' or 'eczema seborrhoicum'. The diagnosis can sometimes be made only after watching the result of treatment.

TREATMENT OF INFANTILE ECZEMA. Local measures hold the first place in the treatment of eczema in infants; *protection from irritation* is the key-note to the successful management of these cases. Measures which aim at improving the general health may certainly help, but such are of little use without local treatment. Since we do not know the true cause of eczema our treatment must be empirical, or, at most, symptomatic: we know, however, that local irritation is a most important factor in its causation, and experience teaches us that a cure will frequently take place if we can protect from local irritation for a time. It matters little what application be used provided it is non-irritating, and that it protects the skin from changes of temperature and from all sources of local irritation. It is important first of all to avoid any sort of washing, certainly not with soap and water. In mild cases the withholding of washing and the application of a simple ointment will sometimes effect a cure. In most cases, however, it is necessary to protect the parts more thoroughly by masks or bandages, as will be presently described. In those cases in which there are masses of scales

and crusts these must first be removed, either by means of applications of lint soaked in olive oil or by boric starch poultices. After the removal of the crusts a dressing of zinc ointment or of zinc cream may be applied. Where there is not much crusting a better application is Lassar's paste, which is a zinc ointment thickened by one part of starch powder to three parts of ointment. These are spread upon strips of butter muslin and firmly bound to the parts with a soft bandage, or, better still, the whole face is covered with a mask of thin lint or of butter muslin, with holes for the eyes, nose, and mouth, and for the ears to keep the mask in position. If the scalp is affected the mask should be made with a long flap above, which is brought over the top of the head, and fastened round the neck to the lower end of the face mask by tapes stitched to its corners. The dressing must be changed once or twice in the twenty-four hours; not oftener, as it disturbs the new-formed epithelium. The ointment must be spread thickly so that the muslin does not get dry and stick, or if this should happen it must be oiled from the outside. This is a most important detail. It is quite common to find that the dressing has been allowed to dry and stick, so that on removing it the new epidermis is pulled away, leaving raw points or patches; besides which the dried discharge is mechanically irritating to the affected skin. Each time the dressing is changed all old ointment or paste must be carefully removed with pledgets of wool soaked in olive oil—the ointment must in no case be allowed to cake on.

These protective applications must be continued for some time after the eruption has subsided.

When some simple non-irritating application does not seem to suit, the fault will in most cases be found to be due to the fact that there is present some overlooked source of local irritation. One of the most frequent of these is rubbing or scratching by the child itself. To prevent this, even in mild cases, the arms should be put into little cardboard splints—a roll of cardboard round the arm from the shoulder to the wrist, and secured by tying the upper ends of the splint together by a string across the back. This allows movement of the arms, but prevents the hands from getting to the face. In severe cases the baby must be put to bed, and one of the several devices employed to keep it still and to prevent scratching. One of the most simple methods is that recommended by White, of Boston. A sleeveless night shirt is made from a pillow-case. The head goes through a hole made in the blind end of the pillow-case. The arms are kept down at the sides by a row of safety pins, pinning together the front and back of the pillow-case between the arms and the trunk. A similar row of pins fixes each leg. In some cases, in spite of all these precautions for protection, patches here and there will refuse to heal, and such patches may be painted occasionally with a weak solution of silver nitrate, or, lenigallol may be added to the zinc paste (3i ad ̄i) for a few applications. Both of these applications have the effect of drying up the discharging points or patches and of forming a thin

black crust over them, which eventually peels off leaving the surface healed beneath.

Without denying the value of many drugs locally applied in ointment or lotions in helping the cure either by coagulation of the discharges, by modification of the process of cornification, or by their anti-pruritic action, I would emphasize the fact that the first consideration is proper protection of the part and careful dressing, and that cures may thus be brought about by the most simple applications, whereas the most vaunted remedies without this care will most often altogether fail.

I have already said that there appears to be some underlying condition which renders the skin particularly susceptible to the action of local irritants; and although we are ignorant of the nature of this condition and have therefore to direct our attention mainly to the prevention of local irritation, yet we must not neglect to remedy as far as possible any obvious defects in general health. Particularly it is of importance to regulate the bowels if constipation be present. The diet too must be attended to and it will be found that some cases are benefited by restricting either the amount of starchy foods or of sugars, while in other cases the skin condition is improved by more liberal feeding more especially by increasing the amount of fat in the food.

As to general treatment—drugs internally are, I think, as a rule, best avoided. When there is anæmia or rickets cod-liver oil and iron may be prescribed, and to relieve itching and procure sleep bromide of

potassium or chloral may sometimes be given in doses suited to the age of the patient. Of the value of arsenic, often recommended in obstinate cases, I have not been able to satisfy myself.

On the supposed danger of too rapidly curing extensive eczematous eruptions in infants. It has long been a tradition that it is unwise to heal up too rapidly an extensive eczema in an infant, for fear of producing severe constitutional symptoms or even a fatal result. How much of truth there is in this assertion it is difficult to estimate. There is indeed a large number of cases reported in which the rapid healing of an extensive eruption in an infant has been followed by alarming symptoms or by sudden death. Some of these are to be explained no doubt by the fact that an intercurrent febrile illness both dries up the eruption and kills the patient. In others, death has been found to be due to well-known causes of sudden death in infants, such as acute nephritis, enlarged thymus, or even to overlying. In a few, examination of the blood and visceral has disclosed the presence of pyæmic organisms; but these cases were microbic eruptions and not eczemas. In some cases a fatal result appears to have followed the application of an ointment to an extensive 'eczematous' eruption, suggesting that toxic products have been shut in by the ointment and absorbed into the circulation. While admitting that these cases are of extreme interest I have no personal experience of them, and I should not hesitate in any case of eczema to try to cure the

eruption as quickly as possible ; it would seem to me, however, in an extensive septic eruption better first of all to employ lotions and moist dressings rather than ointments.

ECZEMA IN OLDER CHILDREN

After the first two years of life eczema is less often met with in children, and when it occurs it has not the special localization to the face as in infants. It does not differ, in fact, from the eczema of adults. It is seen mostly in a patchy form, the patches occurring especially upon the forearms and legs. They are characterized by intense itching, they are red and rough with scales or crusts, or excoriated and oozing, according as the inflammation is dormant or active. On parts that have not been recently scratched the minute clustered vesicles may be seen. In other cases the patches occur behind the knees, and at the bends of the elbows, and the neck or face or trunk may also be the seat of eruption. Such areas may become infiltrated and chronic, while liable always to fresh outbursts unless protected from irritation.

Another type of case is seen sometimes in older children, viz., one in which 'sago-grain' vesicles occur along the fingers—in bad cases passing into vesicating or weeping patches, and in such cases the finger and hand lesions are sometimes associated with an erythematous type of eczema upon the face.

DIAGNOSIS OF ECZEMA IN OLDER CHILDREN.

The patchy form of eczema in older children has to be distinguished from the patches of chronic superficial

dermatitis which I have described above (p. 130). The distinction is difficult, but important as regards treatment. Patches of eczema are more acutely inflammatory during their active outbursts, there is minute vesication and oozing, and itching is a marked feature. The patches of chronic dermatitis are not liable to outbursts with vesication, itching and oozing, though they may become impetiginous and crusted from scratching. Patches of eczema are made worse by strong applications, such as are necessary for the cure of chronic dermatitis patches.

TREATMENT. The treatment of eczema in children is essentially the same as in adults. Any defect in the general health must be appropriately dealt with. There is no drug which is a specific in eczema. Protective local applications are the most effective measures. Lassar's paste is, of these, one of the most useful. To it may be added with advantage certain drugs which either coagulate the secretion or modify the formation of horn-cells or relieve irritation, such as lenigallol gr. xxx ad $\bar{3}$ i, resorcin gr. viij ad $\bar{3}$ i, ol. cadini gr. xv ad $\bar{3}$ i.

When a case has been got somewhat under control—when the crusts and scales have been removed and the exudation is lessened—Unna's glyco-gelatin paste is extremely useful. (See *Formulæ*.)

Another convenient application is Unna's zinc plaster mull—a zinc paste spread upon muslin. In obstinate or extensive cases it may be found that better progress is made if the patient be kept in bed for a while.

CHAPTER XIII

AFFECTIONS OF UNKNOWN ORIGIN

(continued)

PSORIASIS

PSORIASIS is a well-defined disease of common occurrence. It may be seen at any time of life, though seldom under the age of five years, and only very rarely in infants. It is very frequently met with in children above the age of five or six, and it does not then differ essentially from psoriasis in adults, except that it is usually less severe and more amenable to treatment. It may occur in children in any station of life.

The eruption apparently constitutes the whole of the disease, the subjects of it are usually otherwise in good health, and there are no subjective symptoms. The lesions are characteristic and constant in their features, and little liable to modifications. They consist of sharply circumscribed patches of a dull red colour, and covered with thin dry mica-like or 'silvery' scales piled one above another. The patches are distributed with a certain amount of symmetry on the two sides of the body, and, in

children particularly, they are often widely diffused over the trunk and limbs. They have, however, certain favourite sites to which the eruption may sometimes be limited, and which when the eruption is more extensive are seldom excluded. These sites are the elbows, the knees, and the scalp. Sometimes, in a doubtful case, the diagnosis may be made certain by finding silvery-scaled lesions upon the tips of the elbows and knees.

On the other hand, the eruption may be absent from the elbows and knees, and this occurs often in acute cases with small lesions scattered over the whole trunk and limbs, a type of eruption which is common in children.

The lesions of psoriasis begin first of all as minute points or flat papules, and enlarge gradually or rapidly, by extension at their margin, up to split-pea sized lesions, sixpenny-piece sized lesions, and so on up to discs perhaps an inch or two across; or, as the lesion grows larger it may fade in the centre and so form a ring; and adjacent rings may coalesce to form gyrate figures. But the rings and large patches are not so common in children as multiple smaller patches. In an early stage the patches are sometimes not at first scaly, and the scales only appear when the patches have become larger; but they may be recognized as the lesions of psoriasis by gently scraping with the nail when silvery scales will at once appear.

It is to be noted that the lesions of psoriasis do not form a marked infiltration in the skin, and any feeling



PSORIASIS

Photograph kindly lent by Dr. A. Whitfield

of thickness in the skin is due to the heaping up of scales: the redness is due mainly to congestion, and it may be temporarily pressed out with the finger. By scratching away the scales of the lesion a level is soon reached when no more scales will form, but there are produced instead minute bleeding points. These are the ruptured apices of the vascular papillæ, and this feature is said to be characteristic of psoriasis.

On the scalp the patches are not easily recognizable as psoriasis without the presence of lesions elsewhere; they form thickly heaped up scales, smaller and less silvery than on other parts, and without care these patches may be mistaken for 'scurf' or for ringworm patches.

The face may be attacked, though lesions are seldom extensive here. The nails may also be affected, either with punctiform pittings or furrows, or more characteristically, with heaping up of scales beneath the growing end of the nail.

Having reached their full development the patches may remain without change for months, or they may spontaneously begin to subside. A feature of the disease is its strong tendency to recur, so that whether a case is cured by treatment or spontaneously one cannot be sure that it will not return, and perhaps again and again. There may be an interval of a year or more between the attacks. I do not know that psoriasis when it occurs in children is liable to continue through life: my experience is that it usually eventually dies out. On the other hand it may not

make its first appearance till adult age or even until late in life.

ETIOLOGY AND PATHOLOGY OF PSORIASIS. Although the causation of psoriasis has been the subject of keen discussion and of much observation and research during many years no definite conclusions have yet been arrived at as to its true nature. The disease is so definite and characteristic and little variable in its characters, and the lesions are unique, so that it may be supposed that it springs from some definite and single cause. The first of such possible causes that suggests itself is local *parasitic infection*. But there is little to support this view. Lang indeed long ago found what he believed to be micro-organisms in the lesions, but his observations have not been confirmed, and, in fact, it is characteristic of the lesions of psoriasis that micro-organisms which are stained by known methods are absent. Clinically, the simultaneous outburst of lesions on distant parts of the body is unlike a local parasitic infection. Radcliffe-Crocker, however, suggests that there is a primary patch from local infection, and subsequent dissemination by means of the blood circulation. Evidence of contagion from patient to patient is scanty and inconclusive. Cases not infrequently occur in the same family, but this is better explained by a hereditary tendency.

Hereditary tendency is certainly present, but it so far has furnished no clue to the causation. Sometimes several brothers and sisters in one family may be affected, or parent and child, or a generation may be

skipped. Often, however, a case may be the solitary example in a family. The view, that has been held by some, that psoriasis is an inherited affection, in the sense of being an actual anatomical or physiological defect transmitted from parent to child, is negatived by the fact that the lesions are inflammatory and not merely a modification of the degree of keratinization. As to the theory of *nervous origin*, there is absolutely no fact to support it. Yet another cause suggests itself, viz., a *toxic action*. But this view again is mere surmise and is arrived at only by a process of exclusion of other causes. The *histology of the lesions* of psoriasis does not throw light upon its causation. Briefly, the findings are (*a*) dilatation of the vessels of the superficial plexus and of the papillary vessels, with a moderate amount of cell infiltration, (*b*) some thickening of the prickle-cell layer, which is surmounted by (*c*) layers of incompletely cornified cells between which are groups of leucocytes, forming miliary abscesses, and which have of course arrived there by migration through the epidermis from the corium beneath.

DIAGNOSIS. The diagnosis of psoriasis is usually easy on account of the characteristic and constant features of its lesions, namely: the sharply circumscribed, dry, red areas covered with thin silvery scales, and their special tendency to localization upon extensor surfaces. In children, however, the eruption may at first be somewhat puzzling, for it is apt to appear rather suddenly as widely distributed small red flat papules, the scaly surface becoming evident only

upon scratching the papule with the nail. The lesions may even become split-pea sized or threepenny-piece sized without showing marked scaling—which however can always be brought out by gently scraping the surface. The presence of lesions at the knees and elbows and on the scalp in the form of circumscribed scaly patches is often a help to the diagnosis.

Psoriasis may be confused with *chronic patchy eczema*; but the minute vesicles and tendency to moisture and the marked pruritus should easily distinguish the latter.

Pityriasis rosea differs from psoriasis in its paler and less scaly lesion, the scales being branny and not silvery; and in its distribution especially upon the trunk, shoulders, and upper parts of thighs, and its limitation to these regions.

Multiple lupus vulgaris when the lesions are superficial and scaly may be mistaken for psoriasis; but a careful inquiry into the history and an examination of the lesions—revealing the apple-jelly nodule—should correct the diagnosis.

TREATMENT. The treatment of psoriasis is necessarily empirical, but nevertheless, at any rate in children, there is no case which cannot be cured, or, at least, in which the patient cannot be rid of temporarily of the eruption. The tendency to recur we cannot control, although, if the disease be once thoroughly and completely eradicated, it may often not appear again for years, or sometimes not at all.

Of all the methods of treatment available—and

they are many—the most sure and rapid is that by local application of chrysarobin. It has, it is true, certain drawbacks, which I shall presently mention; but, compared with the relief to the patient in severe cases these may be neglected. The treatment may be carried out either with the patient in bed or while he is getting about. In extensive cases it is advisable to put the patient to bed; and then the treatment is as follows:—

(1) The patient is first of all given a warm soap bath in order to remove all loosely adherent scales. He is then put to bed in a sleeping suit and between bed-clothes that may be soiled with impunity—or blue flannel sleeping suit and blankets may be used—this because the chrysarobin stains everything of a deep purple colour. He is then rubbed over the affected parts with an ointment of chrysarobin $\bar{5}i$, to vaseline $\bar{3}i$. The face, scalp, and hands—on account of the liability of the chrysarobin to cause a severe painful conjunctivitis—are not touched with the chrysarobin; a diluted nitrate of mercury ointment, or ung. acid. pyrogallici $\bar{5}i$ ad $\bar{3}i$, being used instead for these parts.

The ointment is rubbed in daily for three or four days, i.e. until the scales begin to fall and the patches to show white and smooth against the deeply stained normal skin around. The patient is then given a second bath. An old bath or a metal bath must be used, as an enamel bath will become stained and spoiled.

(2) If the eruption is less extensive the treatment

may be less vigorous and it may be carried out without putting the patient to bed. Chrysarobin is still the best application; but it must be used in smaller proportions. A useful ointment is as follows:

R Chrysarobini	℞ x-xv
Ol. Cadini	℞ xx-xxx
Ichthyol. . . .	ʒi
Saponis Mollis	ʒij
Vaselinum	ad ʒi

The ointment is rubbed on once or twice daily: a warm bath is given every two or three days. The application is continued until the diseased areas become free from scales and pale compared with the stained skin around. There are various other local applications that may be used; the chief of these are preparations of tar, such as liquor carbonis detergens, or oil of cade, ʒi to vaseline ʒi, or ung. picis liquidæ B.P., generally diluted. Other drugs in common use are pyrogallie acid or salicylic acid, in ointment, and diluted nitrate of mercury ointment. But none of these are so efficacious as chrysarobin. They are to be employed, however, for the face, hands, and scalp, for which parts chrysarobin cannot be safely used.

Internal remedies. A large number of drugs have been employed. Foremost in reputation among these are arsenic, thyroid gland, and salicin.

Either of these drugs will, in some cases, produce striking results; but their action is uncertain, so that it is generally better to begin treatment at once by

local measures and to rely upon these alone. I have never met with a case of psoriasis in a child which did not yield to local measures, and although I have frequently tried each of these drugs alone, without local treatment, I have never succeeded in thus completely curing a case. Arsenic, to do any good, must be given in considerable doses and for periods of from two to three months. The risks of giving thyroid extract unless the patient is constantly under supervision are not counterbalanced by uniformity of results. Salicin though occasionally useful in quite acute cases, paling the eruption and clearing off the scales, more often, even in large doses, fails, in my experience, to produce any result.

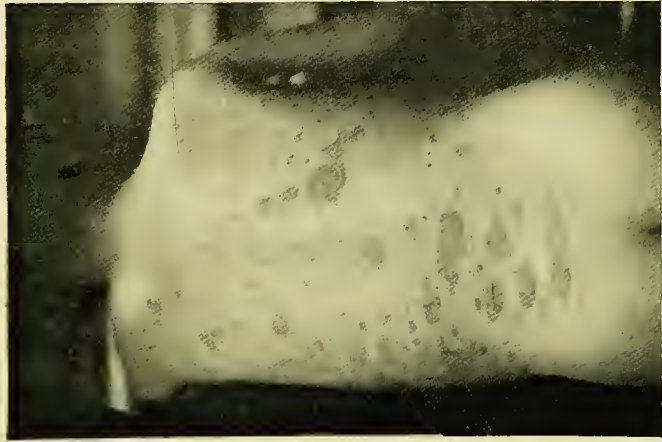
PITYRIASIS ROSEA

Pityriasis rosea is an affection with very definite clinical features. It is characterized by an acute and generally widespread eruption of pale red and slightly scaly patches, which, after remaining for several weeks, spontaneously disappear. It has many of the characters of an exanthem. It is not of rare occurrence, and it is more common in children than in adults.

The eruption may be preceded by slight febrile symptoms, or even by some congestion of the fauces and enlargement of the glands in the neck; but these symptoms, being slight, are usually overlooked, and only the eruption attracts attention.

The eruption usually begins as a solitary patch situated upon the neck, chest, abdomen, arm, or thigh—

the so-called primary or 'herald patch.' This primary patch is oval or circular, of a pinkish or rose colour, slightly scaly, and little or not perceptibly raised. After a few days the primary patch is followed by a further eruption of similar though usually smaller patches, which have a characteristic distribution, covering the trunk and extending on to the neck, a little way on to the shoulders and arms, and for a short distance on to the thighs: in exceptional cases the area of distribution of the eruption may be more restricted, and limited to one part of the trunk, to the shoulders, or to the lower abdomen and thighs. The lesions are at first small and macular, and vary in size from an eighth of an inch to three quarters of an inch or so in diameter; later they may enlarge, and fading at the centre, become circinate, and both macular and circinate lesions may be present together. They often have a tendency to be oval in shape, especially upon the sides of the chest and upon the abdomen, where they are arranged with their long axis sloping downwards and forwards in the direction of the lines of cleavage. The lesions are pale red in colour, sharply circumscribed, little if at all raised, and only very slightly scaly on the surface. In number they vary from a score or so in the more limited eruptions, to innumerable patches in the more widely distributed. There is generally more or less itching; sometimes very considerable. The eruption usually lasts for from three to six weeks and then gradually fades; but sometimes its duration may be more prolonged,



PITYRIASIS ROSEA



ALOPECIA AREATA
(EXTENSIVE)

ETIOLOGY. Of the cause of this affection nothing definite is known. Its course and appearance suggest a parasitic cause, either local or general, and it has been likened to the exanthematic diseases. There is no direct evidence that it is contagious, but it appears sometimes to occur in epidemics, that is to say, several cases are often seen about the same time in the same clinic.

A minute organism was long ago described by Vidal, and named by him the 'microsporon anomceon', but this observation has not been confirmed by others.

DIAGNOSIS. In children the affection for which pityriasis rosea is perhaps most often mistaken is ringworm of the body : but the lesions of ringworm are never so numerous, and their margins are somewhat more sharply defined, and they are more scaly. The distribution of the eruption of pityriasis rosea upon the trunk and extending a little way on to the limbs is characteristic ; with less widely distributed eruption, examination of scrapings under the microscope may be necessary in order to exclude ringworm.

From seborrhœic eczema, and from psoriasis, the eruption of pityriasis rosea is distinguished by the absence of any marked crusting, or scaling, and by the manner of evolution and distribution.

TREATMENT. The treatment of the affection consists in the employment of mildly antiseptic baths and lotions, or ointments. One of the most effectual methods is that recommended by Jamieson, namely,

a nightly warm bath to which a few teaspoonfuls of Condyl's fluid have been added, followed by inunction of salicylic acid ointment (gr. xv ad ʒi).

LICHEN SPINULOSUS

This is a somewhat uncommon and a benign affection which occurs in children. It is characterized by the appearance of fine filiform spines, which have a tendency to arrangement in groups or patches, and which may be distributed more or less symmetrically over the trunk and limbs. The spines arise from the pilo-sebaceous follicles, which are often slightly raised to form pin-head sized pale or reddened papules.

Clinically this eruption bears some resemblance to that known as lichen scrofulosorum, and when spines occur in the latter, as they sometimes do, diagnosis may be very difficult. The less inflammatory character of the lichen spinulosus lesions, the occurrence of the patches rather upon the limbs than upon the trunk, and the fact that they are not associated with tuberculosis, are the points which distinguish it.

The filiform spines, which are plugs of horny cells, are readily removed by local treatment, such as by alkaline soaps and mild salicylic acid ointment.

LICHEN ANNULARIS

During the last ten or twelve years there have been shown at the meetings of the Dermatological Society of London several examples of an affection to which Galloway has given the above title. The lesions,

which are situated upon the hands, or upon the feet, begin as nodules which extend to form round or oval rings. The rings are smooth, rounded, projecting, ivory white, and firm; they are due to chronic inflammation of the upper layers of the cutis, with some increase of overlying epithelium. The skin enclosed by the ring, and which has been the seat of the lesion as it expanded from a nodule, is normal or very slightly atrophic. The lesions gradually and spontaneously undergo evolution.

CHAPTER XIV

AFFECTIONS OF UNKNOWN ORIGIN

(continued)

PEMPHIGUS

THE term pemphigus, which means, literally, a bulla or blister, is now, strictly speaking, limited to the malady pemphigus vulgaris, and to the affections pemphigus vegetans and pemphigus foliaceus, which are probably varieties of the commoner type. It has been applied to bullous eruptions occurring in syphilis—syphilitic pemphigus—and to the bullous impetigo of new-born babies—pemphigus neonatorum, and to other affections accompanied by bullous lesions; but it is better to reserve the term for the disease known as pemphigus vulgaris, which, although of unknown etiology, has such distinctive features as to entitle it to be recognized as an entity.

SYMPTOMS OF PEMPHIGUS VULGARIS. Pemphigus is a rare disease at any time of life. It occurs in children perhaps rather more frequently than in adults. It is characterized by the appearance of blebs, varying in size from an eighth of an inch to half an inch or an inch, or sometimes even two or three inches, in diameter, which appear suddenly, or

within a short space of time, on apparently healthy skin. The bullæ are clear at first, though later they may become turbid and surrounded by a red halo—the result probably of coccic infection. Soon the bullæ become ruptured, or the fluid may be gradually absorbed without rupture, and they heal, leaving for a time a red stain, which ultimately disappears without any scar. The bullæ may appear upon almost any part of the skin; and they often attack mucous membranes, where, however, the wall of the blister being easily ruptured, they appear usually as excoriated areas. The lesions are usually bilaterally distributed, though without being symmetrical; but they may be arranged quite irregularly as groups on different parts of the body. Individual lesions may coalesce to form irregularly-shaped bullæ. It has been said that the bullæ come suddenly, apparently upon healthy skin, but close observation will often show what appear to be slightly erythematous patches preceding immediately the formation of the bullæ; and if the finger be passed firmly over these patches the superficial layers of the epidermis slide off, exposing a bright-red, moist, excoriated surface; for these are really bullæ in process of formation, as yet with insufficient fluid to lift the epidermis.

The eruption of bullæ may continue for several weeks or months; while the already formed lesions are dying down, fresh crops spring up. Eventually the lesions cease to appear and the patient may have no further attack. But often a fresh outbreak occurs

after an interval of some months, and such recurrences being repeated, the disease may sometimes last for years.

In some cases, and especially in children, there may be mild, constitutional symptoms, such as nausea, or sickness, and shivering, before the outbreak, and some pyrexia during the attack; but often there are no symptoms apart from the eruption. Where the lesions are extensive, so that large excoriated surfaces are produced, there may be absorption of septic products with symptoms of toxæmia, as occurs after burns in children. In the majority of cases in children the prognosis is good, much better on the whole than in adults.¹

Pemphigus foliaceus and *Pemphigus vegetans* are serious and generally fatal affections, by many regarded as modifications, or complications of *pemphigus vulgaris*, but they have not been met with in children.

ETIOLOGY AND PATHOLOGY. Of the cause of this

¹ **Epidermic cysts.** Without laying emphasis upon its importance, an interesting feature which may occur as a sequela to the lesions of pemphigus may be mentioned. Although the bullæ of pemphigus do not leave scars, not infrequently their former seat is marked by a sort of tattooing of minute, white points, known as 'epidermic cysts'. Such cysts are not, however, peculiar to pemphigus and they may be seen after other bullous eruptions, sometimes after burns, but notably in the affection known as epidermolysis bullosa or 'congenital pemphigus'. Their pathology is disputed, and need not be discussed here.

disease we know little or nothing. Microscopical examination of the lesions shows that they do not differ from the bullæ produced as the result of local traumatism or from the application of heat, blistering fluid, &c. There is an effusion of fluid into the epidermis from the papillary layers of the corium beneath, separating the prickle-cells, dissolving them, and forming a cavity; sometimes the blister is superficial with only the upper layer of the epidermis as a covering, or it may be formed deeply in the prickle-cell layer, or the whole epidermis may be lifted from the papillæ. The papillary layer of the corium is the seat of a slight amount of vascular dilatation and cell exudation. Of the cause of these lesions we are quite ignorant; but if we consider the conditions under which bullæ are known to be produced, with a view to discussing the possibility of similar agencies in the production of the lesions of pemphigus, we are able to limit the possible causes to two or three. Bullæ may be produced, for example, upon a normal skin by local traumatism, by heat, by cold, and by chemical agents; they may be due to the local action of microbes, representing the result of inflammatory reaction of the tissues; they may follow the ingestion of certain poisons, notably of potassium iodide; or they may be directly dependent upon changes in the nerves, as sclerosis in the spinal cord, myelitis, degeneration of peripheral nerves. In pemphigus vulgaris we can, from the clinical characters and course of the eruption, and from the absence of evi-

dence of contagion, practically exclude microbic action ; local traumatism can possibly come into play only in that it may help to determine the seat of a lesion. So that of possible known causes we have to fall back upon *nervous derangement* or *toxic influences*; and it has been thought that there may be some toxic agent producing the lesions, either by its local action, or through the medium of the nerve centres. But although a toxic origin of pemphigus appears to be feasible, there is at present no proof of such ; examination of blood and urinary secretions with the view to discover changes which might suggest toxic or autotoxic causes has led to no real result.

DIAGNOSIS. One of the most common mistakes is to regard any form of bullous eruption as pemphigus. In children especially, the error is frequently made of diagnosing a case of bullous impetigo as pemphigus—the distinction is of course important for treatment, since the former is the result of local coccic infection, and will clear up under active local antiseptic treatment, while the latter, as will be seen, is less amenable to treatment. In the case of *pemphigus neonatorum* the occurrence of bullous eruption in a new-born baby and the characters of the eruption already given, are sufficient for the diagnosis. In older children the diagnosis may be difficult until the course of the eruption has been watched, and it may be only after the failure of local applications to prevent fresh crops of bullæ appearing, that a diagnosis of pemphigus can be made ; usually, however, in *bullous eruptions*

due to pus cocci there will be other evidences of pus infection, as phlyctenular lesion around the end of a finger, otorrhœa, pediculosis, and impetigo of the scalp, or more typical impetiginous lesions elsewhere, or perhaps in a brother or sister.

It must also be remembered that bullous lesions may sometimes occur in *scabies*, in *erythema multiforme*, and in *lichen urticatus*; but they are then generally few and form part only of the eruption, the typical lesions, burrows, erythematous patches, and wheals being found elsewhere.

The possibility of bullous eruption being due to *potassium iodide* or to *potassium bromide* must also be considered.

TREATMENT OF PEMPHIGUS. Arsenic has long been regarded as *the* drug to be used in the treatment of pemphigus, and while in adults it is often known to fail to produce any result, it is thought by many that in children it is almost a specific. Undoubtedly, many cases of pemphigus in children improve rapidly while taking arsenic, but it is a very difficult matter to decide whether the improvement is due to the arsenic, since the eruption tends to disappear spontaneously, more especially if the patient be kept in bed. In cases, however, which do not improve in bed, arsenic may be tried. Other drugs to be recommended in obstinate cases, where arsenic fails to do any good, are salicin, or quinine, in large doses. All are agreed that one drug is to be avoided—potassium iodide—which always seems to aggravate bullous eruptions of

any kind. Locally, the greatest care must be taken to protect the lesions as much as possible from mechanical injury or from secondary infection—when unbroken by cotton-wool dressing, or if the bullæ are ruptured, by bathing with boric acid lotion and application of ointments spread upon lint, or of wet dressings protected by guttapercha tissue.

CHAPTER XV

AFFECTIONS OF UNKNOWN ORIGIN

(continued)

LICHEN URTICATUS

LICHEN URTICATUS is one of the most common eruptions of childhood, so common, indeed, that probably hardly any child escapes it in some degree. It may be described as a form of 'nettle-rash' or urticaria, peculiar to childhood, and in which the urticarial lesions are small in size and are centred each by a papule or by a papulo-vesicle: the urticarial part of the lesion is fugitive and makes its appearance chiefly at night, so that, during the daytime, there may be present only an eruption of disseminated papules. This papular eruption is no doubt one of the affections known to the older writers under the name of strophulus, and, popularly, as 'gum-rash'. To Bateman (1824) is due the credit of having first recognized the true nature of the affection, and the relationship of the papules with the wheals. Bateman thus described it: 'It may be called *lichen urticatus*, as its first appearance is in irregular, inflamed wheals, so closely resembling the spots excited by the bites of bugs, or gnats, as almost to deceive the observer. The inflammation, however, subsides in a day or two,

leaving small, elevated, itching papulæ. While the first wheals are thus terminating new ones continue to appear in succession until the whole body and limbs are spotted with papulæ, which become here and there confluent, in small patches. This eruption is peculiar to children; it commences, in some cases, soon after birth, and sometimes later, and continues with great obstinacy for many months. Both the wheals and the papulæ are accompanied with intense itching, which is exceedingly severe in the night, occasioning an almost total interruption of sleep, and considerable loss of flesh.'

The final recognition of this affection and of its characteristic features which entitle it to be regarded as a morbid entity is due mainly to the teaching of Dr. Colcott Fox.

Clinical characters. The *lesion* of lichen urticatus is, on its first appearance, a rounded or oval urticarial wheal from an eighth of an inch to half an inch in diameter. It may be of a pale rose colour—paler than the surrounding skin, or it may be of a deep red. It may be little more than a superficial erythema, or a distinct raised red or palish wheal, or a firm angry red deep-seated swelling. At the centre of the wheal is a raised firm papule, which may have at its summit a minute vesicle. When the wheal is pale the papule appears darker than the rest of the lesion; when the wheal is red the papule appears paler. On pressing out the wheal with the finger the central papule becomes momentarily more distinct. After

a few hours the wheal disappears, but leaves the central papule, which may remain for several days. By friction of the papule the surrounding wheal may often be made to reappear temporarily after it has disappeared. Both the wheal and the papule are extremely itchy, and the papule in consequence often becomes scratched and crusted at its summit. Sometimes as the papule fades it becomes dusky red in colour and flattened at the top, so that it closely simulates a lichen planus papule.

These lesions are generally isolated, but sometimes in confluent clusters, and are often widely distributed over the body. Certain regions are, however, particularly attacked; the lumbar region, and buttocks, the outer sides of the arms and of the thighs: the wrists and the hands are often the seat of numerous lesions, though the palms and soles generally remain free. The upper part of the face and the genitals are usually respected.

There may be a dozen such lesions, or they may be innumerable. The papules may be as large as a hemp-seed or as small as a pin's head. Especially in quite young babies the very small type of lesion may be seen, and the small papules may then be so thickly placed over the whole body as to simulate a sudamina or sweat-eruption.

Since the wheal is of short duration and the papule of longer duration, the papular lesions predominate. The urticarial element appears chiefly at night or towards evening. When seen in the daytime there

may be no urticarial lesions present at all, and a few scratched papules scattered over the back and buttocks may be the only signs of the affection. In other cases there may be papules and papulo-vesicles also upon the arms and wrists or on the other parts mentioned above.

Pruritus is a very prominent symptom, and indeed the chief feature of the eruption, and, usually, it is for the itching, which keeps it awake at night, that the child is brought to the doctor. Scratching appears to bring out fresh wheals and probably helps to keep up the eruption. Although the itching occurs chiefly at night, in severe cases, and especially in hot weather, it is present also during the day. The exposure on undressing for examination will sometimes bring out fresh wheals or revive old ones.

The eruption may occur at any age under six or eight years, but it is more common during the first two years of life. It is very frequent among hospital patients and probably little less so among better class patients, though less often severe in type among these.

It occurs most frequently in summer weather, from June to September, although many cases, and even severe examples, may be seen in the cooler months. Its duration is variable. It may last but a few days, often many weeks, sometimes for months, and in exceptional cases for two or three years with only slight remission during the winter months.

The type described—that with the papular or

papulo-vesicular lesions—is the most common. But not infrequently the lesions are *vesicular*. Less often they may be *bullous*. In the vesicular form the lesions may be many and widely distributed, simulating so closely the eruption of varicella that it may be impossible to distinguish it from this affection until one finds that the eruption continues over a long period. When bullous lesions occur they are generally few and often limited to the legs, feet, or hands. Even the vesicular lesions are more common in these situations, and there may often be a few small vesicular lesions about the hands and feet in the ordinary papular type of case.

Occasionally, as one would expect, the eruption becomes complicated by impetigo from infection by scratching. Sometimes there are, in addition to the typical lesions of papule-centred wheals, a few nummular, dry, rough, slightly scaly patches of ‘eczema seborrhoicum’ type or small patches of a little intense vesicular eczema.

Exceptionally I have seen the eruption so extensive that almost the whole body has been covered with closely-set papules—sometimes small pin-head sized, sometimes larger hemp-seed sized. The true nature of these eruptions was only recognized during the subsequent course of the disease, when, under appropriate treatment with soothing applications many of the lesions subsided, or when in new though less violent outbreaks while still under treatment the typical lesions were manifest.

PATHOLOGICAL ANATOMY. The histology of the lesion of lichen urticatus has been studied by Darier, who found an acute inflammatory oedema of the superficial parts of the derma, and in the papule itself a focus of swollen, oedematous, badly staining prickles, above which was a small zone of vesiculation produced by a localized necrosis of the epidermis.

ETIOLOGY. The most obvious etiological factors are the age of the patient—lichen urticatus is an affection of infancy and early childhood—and the especial prevalence in summer. Most writers state that chronic digestive troubles are the real cause of this eruption; but my own experience is that in the majority of cases it is difficult or impossible to find any definite fault with the digestive system. Comby in France, and Funk and Grundzach in Germany, maintain that dilatation of the stomach is a constant feature; personally, I have examined a large number of cases, but even in the most severe examples I have not been able to satisfy myself that gastric dilatation is present: the eruption, moreover, is of so common occurrence, and often it is a mere passing event lasting but a few days or weeks, so that it is impossible to believe that every child affected is suffering from dilatation of the stomach. It is suggested that digestive troubles act by the production of toxins which, acting on the nervous terminals or centres, provoke the pruritus and an abnormal reaction of the skin which leads to the urticarial state.

Hutchinson has called attention to the frequency

of this affection after eruptive fevers or after vaccination; and he says that the vesicular type is especially frequent after varicella. But it must be sometimes difficult to know whether the original eruption was varicella, or lichen urticatus from the beginning. Hutchinson also maintains that many of these cases are actually dependent upon insect-bites, a view which is not shared by other observers.

Dentition has been suggested as a possible cause, and hence the term red-gum, sometimes popularly applied. The frequency of its occurrence during the period of primary dentition is suggestive, but clinical experience does not bear out this idea.

I know of no observations upon the coagulability of the blood in these cases; such observations are very difficult to carry out with any degree of accuracy and would be of value only as indicating extreme degrees of low coagulability.

DIAGNOSIS. Among hospital patients it is sometimes difficult to determine whether a young child, affected with a more or less generalized papular or papulo-vesicular intensely pruritic eruption, is suffering from *scabies* or from *lichen urticatus*. In Lichen urticatus there may be papulo-vesicles about the fingers and toes, which, together with scratched papules on the trunk, and possibly added impetiginous lesions, make the eruption closely simulate that of *scabies*. The finding of the burrows of the *acarus*, or of the characteristic wheals, is the key to the correct diagnosis.

In all classes of patients there may sometimes be difficulty in deciding between *varicella* and lichen urticatus with vesicular lesions. The lesions of varicella may be surrounded by an erythematous halo and they may be very itchy. The presence of lesions in the mouth, and the crusting of the lesions as they evolve, are in favour of varicella. The eruption of lichen urticatus persists for weeks, while that of varicella lasts but a few days.

TREATMENT. Lichen urticatus is often a very obstinate affection : since we are ignorant of its cause, our treatment is chiefly symptomatic, that is to say, aimed at relief of pruritus by local measures. At the same time any defect in general health must be corrected; dyspepsia must be avoided by careful regulation of diet, constipation combated by laxatives, anæmia by iron tonics. Drugs may also be given with the view of overcoming abnormal digestive fermentations, if foetidity of the fæces points to their presence.

In the way of local measures, care must be taken that the clothes are not irritating or too thick, the warm bath, which at bedtime often aggravates the eruption, must be given in the morning. Various local applications will be found useful in relieving the pruritus, though frequently that which seems to relieve one patient will not relieve another, and for the same patient will lose its efficacy after a time. Among useful applications may be mentioned :—

β naphthol $2\frac{1}{2}$ per cent. in vaseline as an ointment :

yellow oxide of mercury ointment gr. iij and $\bar{3}$ i; a lotion made by adding one teaspoonful each of liq. plumbi subacetatis and of liq. carbonis detergens to half a pint of water; the ordinary calamine lotion, to which various drugs may be added; alkaline lotions, sodium bicarbonate or borax; aromatic vinegar with 5 per cent. carbolic acid—a dessert spoonful to a tumbler of water. The efficacy of lotions is increased by subsequent powdering with starch powder.

In extensive cases the eruption will generally rapidly subside if the patient be kept in bed and wrapped in lint sodden in a mixture of equal parts of lime-water and olive oil with 2 per cent. acid salicylic, to render it antiseptic.

As internal remedies:—syrupus ferri phosphatis according to age; bismuth mixture, with half a grain of grey powder at night; salicin gr. iij to gr. v three times a day; salol as an intestinal antiseptic. Quinine in sugar-coated tablets gr. ij of the bisulphate at bedtime will often control pruritus.

A simple diet, and food only at regular times, must be insisted upon. Raw fruit, bananas, apples, oranges, and any kind of sweetmeat must be forbidden.

PRURIGO OF HEBRA

Prurigo of Hebra is rare in this country, and is scarcely seen except among the foreign element in the east end of London. It is characterized by the appearance of small firm papules generalized in distribution, except that the flexures are free,

and accompanied by intense itching. The affection begins in early childhood and continues throughout life. After a time other characters develop—the skin becomes thickened and pigmented, and the glands in the groin, and at other parts, enlarged; and secondary complications, excoriations, pus infections, eczematous eruptions, may arise. There are differences of opinion as to whether this affection invariably begins in infancy, whether the pruritus precedes the eruption or no, and as to whether in the early stages it is or is not accompanied by wheals. The question has been raised as to whether lichen urticatus may pass into Hebra's prurigo, but most observers are agreed that the affections are distinct.

URTICARIA PIGMENTOSA

This rare and peculiar affection is characterized by the appearance in early infancy of circumscribed, rounded, or oval pigmented macules, or less often, raised yellowish nodules. The patches or nodules are generally thickly distributed over the whole integument, though sometimes more sparsely, or they are limited to a part of the skin-surface only. A peculiar feature of the patches is their vaso-motor excitability; friction or exposure causes them to become temporarily turgescient or urticarial. In most cases the affection appears to begin within the first few weeks or months after birth as an urticarial eruption; the urticarial outbursts are repeated, each lesion reappearing upon the same

spot; and eventually the lesions become pigmented and fixed. The eruption persists for years, generally gradually disappearing before puberty. There is no alteration in general health, and no local symptoms beyond more or less itching during an urticarial outburst. The cause of this eruption is unknown. *Histologically* the lesions show certain peculiar characters; they are made up of an accumulation of cells which are known as Ehrlich's *mast cells*, cells which are found in small numbers in normal skin and more numerous in chronic inflammation, but nowhere in such abundance as in the lesions of this affection. In lesions excised during a condition of urticarial swelling, general œdema of the skin has been found. The pigment which forms such a striking feature clinically, does not present any special features beyond its unusual abundance; it is found, as normally, chiefly in the basal-cell layer of the epidermis.

DIAGNOSIS. The characters of the eruption are so striking—the fixed pigmented patches or the yellow nodules of long duration, and the tendency to urticarial swelling on irritation—that diagnosis is easy.

The pruritus and the urticarial swelling would distinguish it from Multiple Xanthoma (p. 21).

TREATMENT has no effect upon the eruption.

CHAPTER XVI

AFFECTIONS OF UNKNOWN ORIGIN

(continued)

ALOPECIA

THERE are three forms of alopecia or baldness commonly met with in children. These are (1) a diffuse and generalized alopecia after febrile or debilitating illnesses; (2) an alopecia in patches following circumscribed inflammations of the skin; (3) alopecia areata.

Very rarely alopecia may occur as a congenital condition, either partial or general, and sometimes associated with defective growth of nails or teeth, or of glandular structures of the skin.

Sometimes alopecia may be the desired result of treatment, as after X-ray applications, or after the application of local irritants as in the older methods of treating ringworm.

DEFINITION AND GENERAL REMARKS UPON THE CAUSATION OF ALOPECIA. By alopecia we mean that the hairs over the affected area have, owing to some interference with their nutrition, fallen from their follicles, leaving the skin bald: a condition in which

the shaft of the hair itself has been attacked by disease and become broken off in consequence, as occurs, for example, in ringworm of the scalp, is not to be regarded as alopecia. For the production of alopecia it is essential that the function of the hair papilla, the organ which supplies it with nourishment, be suspended or destroyed. There are many agents which we know may act in this way: (1) the hair papilla may be actually destroyed by the electrolytic needle in the treatment of hirsuties, or it may occur by inflammation and scarring, as after burns, or in favus, in lupus erythematosus, &c. (2) Local inflammations may temporarily interfere with the function of the papilla, as in bald patches after impetigo, after kerion, or after the application of strong irritants. (3) The X-rays may produce either temporary suppression of the function of the papilla or its permanent destruction by scarring. (4) Toxins circulating in the blood may produce temporary baldness. Acetate of thallium, given for night-sweating of phthisis, has produced complete fall of hair. In certain experimental cases upon animals the injection of various bacterial toxins has led to alopecia. (5) Cases have been recorded in which localized alopecia has resulted from section of or injury to nerves.

ALOPECIA FOLLOWING FEBRILE ILLNESSES

Often in children during convalescence from febrile illnesses, such as scarlet fever and measles, or, in fact, after any illness which leads to general malnutrition,

the hair of the scalp may fall out more or less freely generally so that there is a marked thinning of the hair, rarely to the extent of actual baldness. Such forms of alopecia, although often alarming to the parents, are not of serious moment, for the hair grows again on return of health. Arguing from the experiment already referred to in which fall of hair has resulted from injection of bacterial toxins into the blood of animals, it seems probable that this form of alopecia is due to the action of toxins circulating in the blood: but it might also be explained as the result of simple malnutrition of the hair papilla.

In the **TREATMENT** of this form of alopecia the chief aim should be to improve the general health. Some good may be possibly done by the daily application of a stimulating lotion; this has at any rate the merit of satisfying the parents—and not infrequently the credit of curing the baldness. A simple formula for such a lotion is as follows:—Tinct. Cantharidis ʒss.—ʒi, Ol. Ricini ʒi, Spirit. Vini Rect. ad ʒvj, Ol. Lavandulæ q. s.

ALOPECIA IN PATCHES AS THE RESULT OF LOCAL INFLAMMATION

Localized inflammations of the scalp are not a very uncommon cause of bald patches in children, and such patches, if seen only after the inflammation has subsided, may, without care, be mistaken for true alopecia areata patches.

Such bald patches may sometimes be seen after impetigo of the scalp. In the large majority of cases of impetigo contagiosa no loss of hair results, but sometimes the lesions become crusted with thick scales and inflamed at their base—ecthymatous in fact. Then, owing either to direct involvement of the hair papillæ in the inflammation, or to the toxic action of the serous exudation, the hair falls out, and on healing of the sores bald areas are left. The margins of these patches are not so sharply defined as in alopecia areata, and the hair always grows again after a few weeks or months.

Sometimes the inflammatory patches which precede the alopecia patches are scaly rather than crusted. Yellow, greasy-looking scales are thickly heaped up, and mat together the hairs over the patch. On raising this felting of scales and hair the hairs come away, leaving a smooth, bald area—red and moist if the inflammation is active, dry and glazed if it is subsiding. Such patches occur chiefly upon the vertex of the scalp. They would, from their appearance, generally be regarded as patches of 'eczema seborrhoicum', but, from the fact that there occur all stages between these and the ecthymatous patches just described, I am inclined to regard them as impetigo contagiosa with little exudation.

Bald areas may also be produced upon the scalp by the presence of boils. When a boil occurs upon the scalp it may often be noticed that after a time the hair over the boil, and for some distance around, falls

out, and when the boil subsides a bald patch is left. Since the fall of hair occurs for some distance around the seat of inflammation it must be supposed that it is due to the action upon the hair papillæ of the microbic toxins proceeding from the boil.

Analogous to these bald areas after impetigo and after boils are the patches left after a kerion has subsided, or as the result of deliberate inflammation of ringworm patches by strong applications.

DIAGNOSIS. It is important to distinguish alopecias of this type from true alopecia areata, since in these cases a definitely favourable prognosis may be given; while in cases of alopecia areata, although regrowth usually takes place after a year or more, one can never be sure that the disease will not extend or recur. The diagnosis of inflammatory alopecia is usually easy. The case may be seen while the local inflammation is still present, or there may be some evidence of it in the form of still adherent crusts or scales, or, in the case of a bald patch due to a boil, of a central pigmented mark or scar. If all inflammation is gone there is a history of previous scabbing, and the patches are not so sharply defined at their margins as are true alopecia areata patches.

TREATMENT. These cases require no treatment beyond attention to any impetigo or other inflammatory affection still present. When all crusts or scales have gone a stimulating lotion may be used with the view to hastening the regrowth.

ALOPECIA AREATA

Alopecia areata is, as the name implies, a baldness occurring in patches. It is met with at all ages, but it is most frequently seen in children and in young adults. In children it is a very common affection. The fact that it occurs particularly at this time of life is of importance from a practical point of view, because it is not seldom mistaken for ringworm of the scalp, and, being a noncontagious disease, children affected with it are thus often unnecessarily kept from school.

The usual course of the affection is as follows:—somewhere upon the scalp, often at one side of the occiput—though by no means invariably here—a circular bald patch makes its appearance. The hair over the patch has fallen out suddenly. For the next few days it continues to enlarge by further fall of the hairs at its margin. There may be one patch only, or there may be two, or more; or a single patch at first, and others quickly following. The patches are perfectly hairless, smooth, and shining, and whiter than the surrounding normal parts, so that they stand out in marked contrast to the thickly haired scalp around. Their margins are abrupt, though close inspection will generally show, just on the margin of the bald patch, and also among the normal hairs close around, few or many broken off stumps. In quite an early stage a patch may appear to be a little more pink or congested than the

surrounding skin, but it soon becomes pale, the whiteness which contrasts so strongly with the scalp around being due to the absence of hairs in the follicles whose presence darkens the normal scalp. It is to be noted that the hairs have fallen out from the patch, and that they are not simply broken off in the follicles as in ringworm: a long hair on or at the margin of a recent patch will be found to come away on the least traction, and its root, instead of showing a swollen bulb as the normal hair does, has a withered or pointed end. The broken stumps already mentioned are hairs which have perished less suddenly. They are the characteristic 'note of interrogation' hairs of alopecia—their broken free end has the width and colour of a normal hair, while their base is narrowed and unpigmented and attached to the upper part of the (now atrophied) follicle by a spread-out atrophied stump.

On traction of these short stumps with forceps they are found to be pretty firmly attached, and they come away from the scalp with a sharp click. In this feature and in their elasticity and absence of opacity they contrast strongly with the stumps of ringworm.

Having reached a certain size, which may vary from a patch half an inch across to one several inches in diameter, or irregular patches formed by the coalescing of several smaller ones, the bald areas cease to extend, and they may remain in this condition for months, or even for years; but eventually a fine downy growth makes its appearance and gradually becomes

strong and pigmented. Sometimes, however, the downy hair will fall again, perhaps once, or may be several times, before it finally grows normally. Even after complete regrowth relapses may occur, the fresh patches not necessarily corresponding to the areas previously affected.

Sometimes a portion of one or of both eyebrows may fall, or some of the hairs of the eyelashes—growing again after several months as in the case of the scalp patches (Plate XII, case of extensive alopecia areata).

ALOPECIA AREATA BECOMING UNIVERSAL ALOPECIA. Such is the course of the affection in the majority of cases—a natural cure coming about in from twelve months to two years; but in some cases the patches continue to spread, either slowly, or, more often, in these circumstances, rapidly until the whole of the scalp is denuded and even the eyebrows and eyelashes and the glabrous skin, so that not a hair is left on the body. These universal cases are of far more serious prognosis than are those cases where the patches remain localized. Certainly, in some instances, the hair does grow again, but in many cases it never does so. The longer the regrowth is delayed the less is the chance of the hair returning.

PATHOLOGY AND ETIOLOGY OF ALOPECIA AREATA. The causes of alopecia areata are as yet unknown. There are two views generally held as to its causation, the one that it is of *parasitic origin*, the other that it is of *nervous origin*. But there is little evidence to support either of these views.

The theory of parasitic origin. As regards the 'parasitic' theory, the absence of clinical evidence as to the contagiousness of the affection, the absence of the usual signs of inflammatory reaction, the sudden fall of hair, often over large areas, and the fact that the patches once formed may remain of the same size for many months, all these points are opposed to the idea of microbic infection. Moreover, as regards micro-organisms there can be no question of a fungus or a microbe growing in the hair itself as in ringworm. We can only imagine micro-organisms affecting the hair papilla either by their producing a local inflammation in the tissues which directly involves the papilla, or by the toxins which they may manufacture. But, both clinically and microscopically, there is an absence of the usual signs of inflammatory reaction to microbic infection. It has indeed been demonstrated that in the early stages there is a leucocytic infiltration, but this is limited to the immediate neighbourhood of the vessels of the area affected and is not especially localized around the hair follicles. The cell infiltration, too, is of the type of mononuclear leucocytes or lymphoid cells, such as is associated rather with toxic action than with microbic infection, which latter tends rather to induce a polynuclear leucocytic exudation.

Theory of nervous origin. But if there is little evidence to support the parasitic view of alopecia areata there is still less to support the view of *nerve influence*. The affection is so very common in children

who exhibit no 'neurotic' symptoms whatever, it is not accompanied by pain or by alteration in sensibility of the part, the distribution of the areas is irregular and does not correspond to particular nerve areas, and it not infrequently becomes universal, an event which would be difficult to explain as being the only evidence of a generalized nerve disturbance. Jacquet's theory that the patches result from reflex nerve irritation, particularly such as may be set up by dental caries, receives no support clinically—at any rate to my mind. I have many times examined cases of alopecia areata and have found the teeth quite normal, and in other instances I have had all defects repaired without finding any improvement in the alopecia.

Question of toxic action. If we can dismiss the question of parasitic infection, of local inflammation and of nerve influence, there remains only that of toxic action as a possible cause of alopecia areata. There are many features of this affection which would fit in with such a theory: the sudden fall with occasional rapid spread to the whole body; the spontaneous recovery, with relapses; the absence of marked inflammatory signs; all of these would be more easily explained by the temporary presence of a toxic agent than by other theories. We know already, too, that poisons in the blood may produce fall of hair. Histologically the presence of mononuclear leucocytes and the absence of polynuclear cells points rather to toxic action than to bacterial infection. In support of this

view, however, there are no facts, and like those already discussed it is at present purely theoretical.

DIAGNOSIS. Alopecia areata, in children, has to be diagnosed from bald areas the result of local inflammations, and from ringworm. The diagnosis from *post-inflammatory alopecia* has already been discussed.

Usually there should be no difficulty whatever in distinguishing alopecia areata from *ringworm*; but, simply from carelessness in observation, mistakes are frequently made. The smooth, shiny, perfectly bald circumscribed patch of alopecia areata, contrasts strongly with the ringworm patch, which is not bald but covered with broken stumps, and often with scales. The occurrence of short stumps upon an alopecia patch, generally towards the margin, seldom at the centre of the patch, should not deceive, for the *alopecia stumps* are characteristic: they are thick and pigmented at the free end, fine and pale at the attached end, they are translucent and elastic, and when pulled at



FIG. 5.

they come away with a sharp click, their atrophied root being attached quite superficially (Fig. 5 *a*). On the other hand, the *ringworm stump* is opaque and lustreless, and has lost its elasticity so that it easily bends or breaks, is the same thickness throughout its length, and when pulled at it comes away

without the least resistance, breaking off within the follicle (Fig. 5 b).

Only with the exceptional cases of what was formerly called 'bald ringworm' can there be any difficulty in diagnosis—sometimes, in cases of large-spored endothrix ringworm, the stumps become broken quite short, and level with the mouths of the follicles, and these cases may then simulate alopecia areata. But with care one can find the short stumps either just plugging the mouths of the follicles or curled up to form a 'black-dot' just beneath the epidermis. Examination under the microscope shows the stumps packed with spores.

Treatment of alopecia areata. Since we are ignorant of the cause of alopecia areata we have little to guide us in its treatment. It is usual to prescribe applications which stimulate the local circulation, with the idea of thus stimulating the growth of hair: to such applications are often added parasitocides with the view to destroy any micro-organism that may be present. The following are examples of such applications:—

℞ Liquor. epispasticus		℥xv	
Ung. hydrarg. oxidi rubr.		ʒi	
℞ Ol. myristicæ	ʒij	℞ Acet. cantharidis	ʒss
Spirit. vini rect.	ʒij	Hydrarg. perchlor.	gr. iij
Spirit. lavandulæ	ʒij	Spirit. vini rect. ad	ʒiij
		Ol. lavandulæ q. s.	

Other applications used are sulphur ointment, well and frequently rubbed in; painting with pure carbolic acid; or blistering with liq. epispasticus.

From my own experience I am very doubtful whether any of those remedies really hasten the growth of hair: they certainly fail to check its fall.

Of recent years the X-rays and high frequency currents have been used in the treatment of alopecia areata. I have seen no results from the application of X-rays, but I have observed regrowth of hair to take place after the application for some weeks of a brush discharge from the high frequency apparatus, and I think that there is reason to believe that this method is useful.

In all cases it is important to attend to the general condition; patients are often anæmic and languid, and one cannot help feeling that improvement of health must aid the regrowth of hair. Iron I think is especially useful.

The clinical relationship of alopecia areata and ringworm. Cases sometimes occur in which ringworm of the scalp co-exists with alopecia areata, or in which alopecia areata follows ringworm, but the suggestion that has been made that all cases of alopecia areata are sequelæ of ringworm, is quite untenable and contrary to all clinical experience. That the two diseases should sometimes occur together upon the same scalp is not surprising considering that they are both common affections in childhood. The alopecia may sometimes correspond more or less exactly to a previous ringworm patch, or it may partially overlap it, or it may be quite independent. There is no evidence that the occurrence of these two affections

together is more than a coincidence. Among many thousand cases of ringworm of the scalp I have only met with it half a dozen times.

It must be remembered, however, that bald patches may occur after ringworm as the result of kerion or of inflammation produced by treatment, and these must not be confused with true alopecia areata.

I have already referred to the fact that the hairs of endothrix ringworm may, as the result of treatment, become broken short in the follicles so that the ringworm patch may simulate an alopecia ; but this too is easily distinguished with care.

FORMULÆ

A LIST OF THE PRINCIPAL REMEDIES FOR EXTERNAL APPLICATION MENTIONED IN THE TEXT

BATHS.

(1) *Warm bath.* Temperature of water 90° F., gradually increased to 98° F. after patient is immersed—duration of bath 10-20 minutes—quantity of water required for a child of about one year is 7 gallons.

A simple warm bath is useful in removing scales or crusts as in psoriasis or impetiginous eruptions or as a preliminary to the application of ointments in scabies. The part played by the warm water as a fomentation in impetiginous and pustular affections is a very valuable one. In psoriasis and scabies soft soap may be used with advantage.

Various medicaments may be added to the bath to increase its emollient, or antiparasitic value, or for an antipruritic effect.

(2) *Alkaline bath.* Sodium carbonate $\bar{\text{z}}\text{i}$; borax 120 grains.

(3) *Bran bath.* Bran 1 lb; boiling water 4 pints; mix; strain.

(4) *Glycerine* $\bar{\text{z}}\text{i}$.

(5) *Tar bath.* Solution of coal tar $\bar{\text{z}}\text{ij}$.

(6) *Sulphur bath.* Sulphurated potash $\bar{\text{z}}\text{i}$.

(7) *Boric acid bath.* Boric acid 1 lb.

(8) *Mercurial bath.* Perchloride of mercury 60 grains: hydrochloric acid αxxx (about 1 in 10,000).

(9) *Condy's fluid* $\bar{\text{z}}\text{i}$.

Each of these quantities to be added to a bath of 7 gallons.

LOTIONS.

R Acidi borici $\bar{\text{z}}\text{v}$.
Aquæ $\odot\text{i}$.

(Antiseptic.)

- R Hydrarg. perchloridi gr. ijss. (Antiseptic, anti-
Aquæ \odot i. pruritic.)
- R Liq. sodæ chlorinatæ $\overline{3}$ ij- $\overline{3}$ v. (Antiseptic.)
Aquam ad \odot i.
- R Sodii biberatis $\overline{3}$ ss. (Antipruritic.)
Aquæ \odot i.
- R Sodii bicarbonatis $\overline{3}$ ss. (Antipruritic.)
Aquæ \odot i.
- R Liq. carbonis deterg. $\overline{5}$ i- $\overline{5}$ ij. (Antipruritic.)
Aquæ \odot i.
- R Liq. plumbi subacetatis $\overline{5}$ ij- $\overline{5}$ iv. (Antipruritic.)
Aquæ \odot i.
- R Ichthyol $\overline{5}$ i- $\overline{5}$ ij (In erythema.)
Aquæ camph. $\overline{5}$ vj.
- R Argent. nitratis gr. ij-gr. iv. (Intertrigo and eczema.)
Aquæ $\overline{5}$ i.
- R Calaminæ $\overline{5}$ iv. (Erythema.)
Zinci oxidi $\overline{5}$ ij.
Aq. calcis $\overline{5}$ iiij.
Glycerini $\overline{5}$ ij.
Aquam ad $\overline{5}$ vj.
- R Tinct. cantharidis $\overline{5}$ ij. (Alopecia.)
Acid. acetic. fort. $\overline{5}$ i.
Glycerini $\overline{5}$ iv.
Sp. rosmarini $\overline{5}$ i.
Aq. rosæ ad $\overline{5}$ viiij.

SOLUTIONS.

- R Potassi permanganatis gr. xxiv. (Lupus.)
Aquæ $\overline{5}$ i.
- R Liquor sodii ethylatis. B. P. (Superficial uævi.)
- R Liq. hydrarg. nitr. acidus. B. P. (Condylomata and
warts.)
- R Acidi salicylici $\overline{5}$ i. (Warts and corns.)
Collodion flexile $\overline{5}$ i.
- R Saponis mollis $\overline{5}$ iiij. (Hebra's alkaline soap
Spiritus vini rect. $\overline{5}$ ij. solution.)

OINTMENTS.

- R Hydrargyri ammon. chlor. gr. v. (Impetigo.)
Paraffin. mollis \bar{z} i.
- R Zinci oxidi \bar{z} ss. (Impetiginous eczema.)
Hydrargyri ammon. chlor. gr. v.
Paraffin. mollis \bar{z} i.
- R Zinci oxidi \bar{z} ss.- \bar{z} i. (Seborrhœic eczema.)
Sulphuris precip. gr. xv-gr. xxx.
Lanolin. \bar{z} ss.
Paraffin. liquid. ad \bar{z} i.
- R Acidi salicylici gr. xv. (Mild antiseptic.)
Paraffin. mollis \bar{z} i.
- R Resorcini gr. xv. (Pustular impetigo.)
Paraffin. mollis \bar{z} i.
- R Zinci oxidi \bar{z} i. (Eczema.)
Lenigallol \bar{z} ss. vel Resorcini. gr. vij.
Paraffin. molle ad \bar{z} i.
- R Chrysarobini gr. x-gr. xl. (Psoriasis.)
Ol. cadini α xx- \bar{z} i.
Ichthyol α xx- \bar{z} i.
Paraffin. mollis \bar{z} i.
- R Acid. carbolic. gr. x. (Tinea circinata
Ung. hydrarg. nit. B. P. \bar{z} i. psoriasis.)
- R Ung. Sulphuris B. P. \bar{z} i. (Various forms of chronic
Acid carbolic α x- α xv. dermatitis.)
- R Sodii chloridi \bar{z} ss. (Ringworm of scalp.)
Paraffin. mollis \bar{z} ss.
- R Liq. epispasticus α x. (Alopecia.)
Ung. hydrarg. oxidi rubr. B. P. \bar{z} i.
- R β naphthol. gr. x. (Pruritic eruptions.)
Paraffin. mollis \bar{z} i.
- R Chloral hydratis \bar{z} i. (Pruritic eruptions.)
Camph. pulv. \bar{z} i.
Gum arabic pulv. \bar{z} i.
Ung. cetacei ad \bar{z} i.
- R Hydrarg. ox. flav. gr. iij. (Pruritic eruptions.)
Paraffin. mollis \bar{z} i.

- R Styracis præp. ʒi. (Scabies.)
 Spiritus methyl. ʒi.
 Adipis benzoat. ʒvj.
- R Sulphur precip. gr. x-gr. xxx. (Scabies.)
 Adipis benzoat. ʒi.

CREAMS, PASTES, MULLS, ETC.

Zinc cream. R Zinci oxidi ʒvij.
 Lanolini ʒi.
 Aq. calcis ʒi.
 Ol. amygdalæ ʒi.

(Thymol gr. v, acid. salicylic gr. x, liq. carbonis detergens
 ʒxxx, &c. may be added.)

(Eczema, and pruriginous eruptions with excoriations.)

Zinc paste (Lassar's paste).

R Pulv. zinci oxidi ʒij.
 Pulv. amyli ʒij.
 Paraffin. mollis ʒs.

(Acid. salicylic gr. x, resorcin gr. x, lenigallol gr. xxx may
 be added.)

(Protective and absorbent in eczema and other inflammatory
 conditions of the skin.)

Zinc glyco-gelatin (Unna's paste).

R Zinci oxidi 2.
 Gelatini 3.
 Glycerini 5.
 Aquæ 9.

Soak the gelatin in the water for 12 hours; then heat to dis-
 solve, and add the zinc oxide previously rubbed down with the
 glycerine. For use; melt and apply with a brush, afterwards,
 while the paste is wet, dabbing on cotton wool to form a felting.
 This dressing may be kept on for several days. Various drugs
 may be added, resorcin, ichthyol, oil of cade, &c.

(Protective in subacute eczema, especially upon limbs.)

Boric acid starch poultice.

R Acidi borici ʒi.
 Pulv. amyli ʒs.
 Aq. ʒi.

The boric acid and the starch are made into a paste with a little water; a pint of boiling water is then poured on to the paste, stirring until a jelly forms. The jelly is spread thickly upon lint, covered with fine muslin and applied.

(For removing crusts in eczema and impetigo; and as application to inflamed surfaces.)

Guttapercha plaster—mulls (Unna).

Medicated rubber plasters spread upon guttapercha backed with muslin: dosage in grammes to the square metre.

No. 10. Acid. salicylic grammes 10 to sq. metre.

No. 155. Acid. salicylic grammes 20 to sq. metre.

No. 153. Acid. salicylic grammes 40 to sq. metre.

(Lupus.)

No. 88.	Hydrargyri grammes 10	} to sq. metre.
	Hydrargyri bichlor. grammes 20	
	Acidi carbolici grammes 2	
	Zinci oxidi grammes 10	

(Boils.)

No. 14.	Zinci oxidi grammes 10	} to sq. metre.
	Ichthyol grammes 5	

No. 24. Zinci oxidi grammes 10 to sq. metre.

(Eczema.)

Salve mulls (Unna).

Ointments of hard consistency spread on muslin.

No. 1018.	Ichthyol grammes 2	} to sq. metre.
	Zinci oxidi grammes 10	

(Eczema.)

No. 1028. Chrysarobin grammes 10 to sq. metre.

(Psoriasis.)

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